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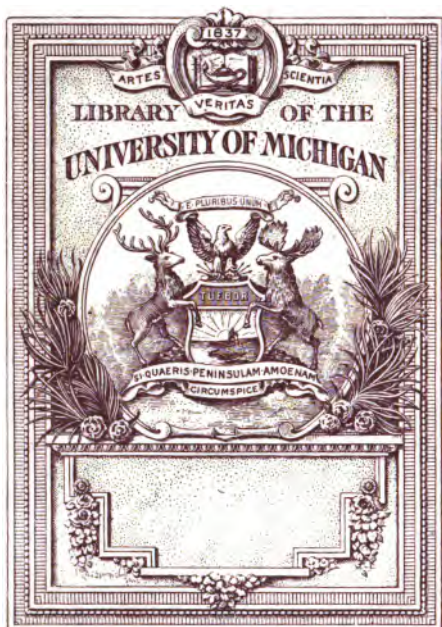
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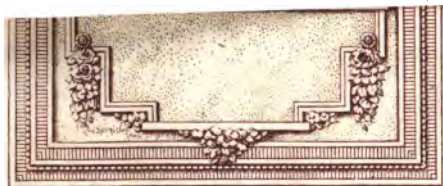
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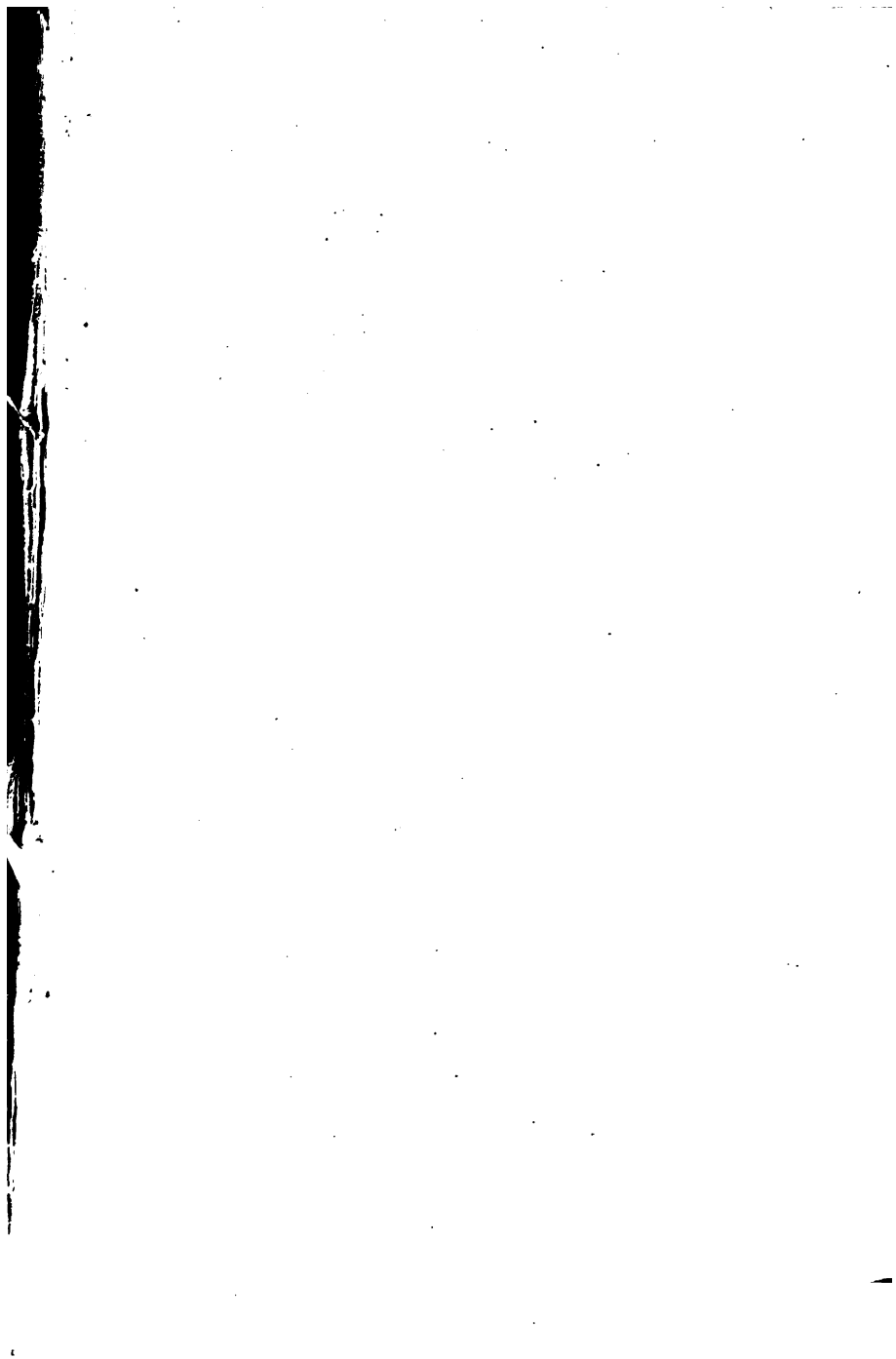
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*William Ramsay.*

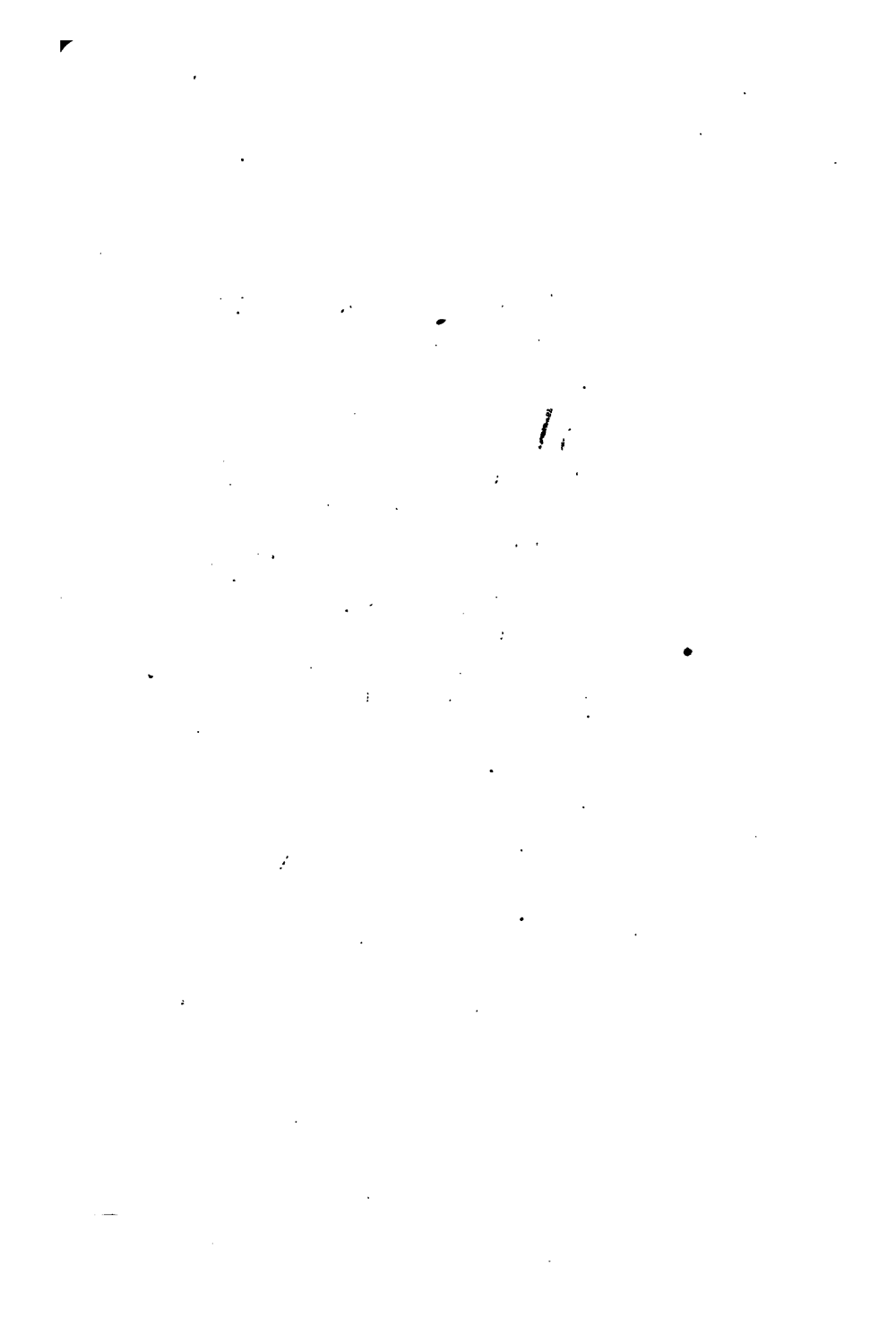
## SIR WILLIAM RAMSAY

K.C.B., LL.D., D.Sc., Ph.D., F.R.S., F.C.S.

OFFICIER LÉGION D'HONNEUR

**W**AS born in Glasgow, Oct. 2, 1852, son of the late William Ramsay, C.E., married in 1881 Margaret, daughter of G. S. Buchanan. Educated at Glasgow and Tübingen Universities. Assistant in Chemistry, Glasgow University, 1874-80. Professor of Chemistry and Principal, University College, Bristol, 1880-87. Professor of Chemistry, University College, London, 1887-date. President Society Chemical Industry, 1894.

**¶** Discovered Argon in 1894 in conjunction with Rayleigh, and Helium in 1895; Neon, Krypton and Xenon in 1898 in conjunction with Travers.



# VAN NOSTRAND'S CHEMICAL ANNUAL

1907

A HAND-BOOK OF USEFUL DATA  
FOR ANALYTICAL, MANUFACTURING, AND INVESTIGATING  
CHEMISTS, AND CHEMICAL STUDENTS

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FIRST YEAR OF ISSUE

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*WITH THE COÖPERATION OF EMINENT CHEMISTS*



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## PREFACE

THE amount of chemical literature published each year has steadily increased at a very rapid rate. It has become more and more difficult for the busy worker to gather from this mass of literature the facts which are of interest and use to him. Much valuable material is of little use because scattered through the literature and therefore inaccessible.

The publication of the Chemical Annual was undertaken as an attempt to overcome this difficulty, at least in part. It has been limited in its scope almost entirely to numerical data, inasmuch as other year books have not aimed to cover this field, and inasmuch as such data cannot generally be carried in the mind, but must be readily accessible for use. To republish all matter of this kind would be both unnecessary and impracticable. The attempt has been made to select and tabulate only that which is of fairly general interest and utility. The investigator in a special field would probably always prefer to go to the original source for the information he wishes. In the preparation of the Chemical Annual the attempt has been made to produce a convenient reference book of numerical data. All tables and numerical data have been quoted from the original source wherever possible, notwithstanding the labor which this work involved.

The tables useful in the calculation of analytical results were first compiled. It is believed that this portion of the Annual is quite complete and will meet all ordinary requirements. All molecular weights as well as the factors for the calculation of analytical results have been calculated from the International Atomic Weights of 1906. As most of the numbers have been calculated several times it is believed that few errors will be found. The molecular weights and other figures have been carried out further beyond the decimal point than is necessary for most calculations. It was thought that the tables would be of more general use if

each chemist were thus at liberty to round off the figures to suit the accuracy of the work in hand.

In collecting the specific gravity tables those most adapted to American practice have been selected. When the specific gravity is given in terms of the Baumé degrees, the so-called American standard as given in Table XXVII has been adhered to. Where a different Baumé scale had been used in a table the figures have been recalculated to conform with the American standard.

In the review of chemical literature, which contains more than one thousand references to journal articles, the attempt has been made to tabulate and index the important articles of the year in such a manner that the progress made during the year on any given subject will be apparent and its literature easily and quickly found. Any attempt to give a synopsis of the articles would have made the Annual very bulky, and in any case is of doubtful utility.

In a similar manner a list has been made of the most important American and foreign books on chemical subjects which have been published during the year. While the preparation of this list has been somewhat difficult it is hoped that few if any important books have been omitted. Both this list and the list of journal articles include publications from January 1, 1905, to June 1, 1906.

The expense and labor involved in the publication of a book of this kind has been found to be very considerable, so that even with the assistance of a number of contributors, whose interest and coöperation it has been found possible to enlist, the scope of the first issue of the Annual is much more limited than it had been hoped possible to make it. If the demand for such a publication justifies it, the scope of the Annual will be considerably increased in future issues.

The editor desires to express his appreciation of the interest taken and encouragement given by many chemists who did not have the time to prepare matter for publication. He is especially grateful to those whose names appear on the list of contributors and who spared neither time nor labor in the effort to make their contributions accurate and complete.

*November, 1906.*

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# I. — INTERNATIONAL ATOMIC WEIGHTS FOR 1906 \*

$$O = 16$$

Name.	Symbol.	Atomic Weight.	Name.	Symbol.	Atomic Weight.
Aluminium . . . . .	Al	27. 1	Neodymium . . . . .	Nd	143.6
Antimony . . . . .	Sb	120. 2	Neon . . . . .	Ne	20
Argon . . . . .	A	39. 9	Nickel . . . . .	Ni	58. 7
Arsenic . . . . .	As	75. 0	Nitrogen . . . . .	N	14. 04
Barium . . . . .	Ba	137. 4	Osmium . . . . .	Os	191
Bismuth . . . . .	Bi	208. 5	Oxygen . . . . .	O	16. 00
Boron . . . . .	B	11. 0	Palladium . . . . .	Pd	106. 5
Bromine . . . . .	Br	79. 96	Phosphorus . . . . .	P	31. 0
Cadmium . . . . .	Cd	112. 4	Platinum . . . . .	Pt	194. 8
Caesium . . . . .	Cs	132. 9	Potassium . . . . .	K	39. 15
Calcium . . . . .	Ca	40. 1	Praseodymium . . . . .	Pr	140. 5
Carbon . . . . .	C	12. 00	Radium . . . . .	Ra	225
Cerium . . . . .	Ce	140. 25	Rhodium . . . . .	Rh	103. 0
Chlorine . . . . .	Cl	35. 45	Rubidium . . . . .	Rb	85. 5
Chromium . . . . .	Cr	52. 1	Ruthenium . . . . .	Ru	101. 7
Cobalt . . . . .	Co	59. 0	Samarium . . . . .	Sm	150. 3
Columbium . . . . .	Cb	94	Scandium . . . . .	Sc	44. 1
Copper . . . . .	Cu	63. 6	Selenium . . . . .	Se	79. 2
Erbium . . . . .	Er	166	Silicon . . . . .	Si	28. 4
Fluorine . . . . .	F	19	Silver . . . . .	Ag	107. 93
Gadolinium . . . . .	Gd	156	Sodium . . . . .	Na	23. 05
Gallium . . . . .	Ga	70	Strontium . . . . .	Sr	87. 6
Germanium . . . . .	Ge	72. 5	Sulphur . . . . .	S	32. 06
Glucinum . . . . .	Gl	9. 1	Tantalum . . . . .	Ta	183
Gold . . . . .	Au	197. 2	Tellurium . . . . .	Te	127. 6
Helium . . . . .	He	4	Terbium . . . . .	Tb	160
Hydrogen . . . . .	H	1. 008	Thallium . . . . .	Tl	204. 1
Indium . . . . .	In	115	Thorium . . . . .	Th	232. 5
Iodine . . . . .	I	126. 97	Thulium . . . . .	Tm	171
Iridium . . . . .	Ir	193. 0	Tin . . . . .	Sn	119. 0
Iron . . . . .	Fe	55. 9	Titanium . . . . .	Ti	48. 1
Krypton . . . . .	Kr	81. 8	Tungsten . . . . .	W	184
Lanthanum . . . . .	La	138. 9	Uranium . . . . .	U	238. 5
Lead . . . . .	Pb	206. 9	Vanadium . . . . .	V	51. 2
Lithium . . . . .	Li	7. 03	Xenon . . . . .	Xe	128
Magnesium . . . . .	Mg	24. 36	Ytterbium . . . . .	Yb	173. 0
Manganese . . . . .	Mn	55. 0	Yttrium . . . . .	Yt	89. 0
Mercury . . . . .	Hg	200. 0	Zinc . . . . .	Zn	65. 4
Molybdenum . . . . .	Mo	96. 0	Zirconium . . . . .	Zr	90. 6

\* Compiled by the International Committee on Atomic Weights consisting of F. W. Clarke, K. Seubert, H. Moissan, and T. E. Thorpe.

## II.—MENDELÉEFF'S PERIODIC SYSTEM OF THE ELEMENTS

Series	Zero Group.	Group I.	Group II.	Group III.	Group IV.	Group V.	Group VI.	Group VII.
0 $\alpha$								
1	$\gamma$	H=1.008						
2	He=4.0	Li=7.03	Gl=9.1	B=11.0	C=12.00	N=14.04	O=16.00	F=19
3	Ne=20.	Na=23.05	Mg=24.36	Al=27.1	Si=28.4	P=31.0	S=32.06	Cl=35.45
4	A=39.9	K=39.15	Ca=40.1	Sc=44.1	Ti=48.1	V=51.2	Cr.=52.1	Mn=55.0
5		Cu=63.6	Zn=65.4	Ga=70	Ge=72.5	As=75.0	Se=79.2	Br=79.96
6	Kr=81.8	Rb=85.5	Sr=87.6	Y=89.0	Zr=90.6	Cb=94	Mo=96.0	Ru=101.7
7		Ag=107.93	Cd=112.4	In=115	Sn=119.0	Sb=120.2	Te=127.6	Rh=103
8	Xe=128	Cs=132.9	Ba=137.4	La=138.9	Ce=140.25	—	—	Pd=106.5
9		—	—	—	—	—	—	(Ag)
10	—	—	—	Yb=173.0	—	Ta=183	W=184	—
11		Au=197.2	Hg=200.0	Tl=204.1	Pb=206.9	Bi=208.5	—	Os=191
12			Ra=225	Th=232.5	—	—	U=238.5	Ir=193.0
								Pt=194.8
								(Au)

Fe=55.9  
Co=59.0  
Ni=58.7  
(Cu)

Ru=101.7  
Rh=103  
Pd=106.5  
(Ag)

Os=191  
Ir=193.0  
Pt=194.8  
(Au)

### III.—SPECIFIC GRAVITY OF GASES\*

Name.	Formula.	Molecular Weight.	Specific Gravity, Air = 1.		Weight in Grams of 1 Liter at 0°, 760 mm. at Sea Level, lat. 45°.
			Calculated.	Observed.	
Acetylene.....	C <sub>2</sub> H <sub>2</sub> .....	26.016	0.8988	0.92	1.1620
Air.....			1.0000		1.29330
Ammonia.....	NH <sub>3</sub> .....	17.064	0.5895	0.5971	0.7621
Argon.....	A.....	39.9	1.379	1.379	1.7828
Arsine.....	AsH <sub>3</sub> .....	78.024	2.696	2.695	3.485
Bromine.....	Br <sub>2</sub> .....	159.92	5.5249	5.524(227.9°)	7.1426
Butane.....	C <sub>4</sub> H <sub>10</sub> .....	58.08	2.0065	2.01	2.594
Carbon dioxide...	CO <sub>2</sub> .....	44.00	1.5201	1.52909	1.9652
Carbon monoxide..	CO.....	28.00	0.9673	0.96716	1.2506
Carbon oxy sulphide	COS.....	60.06	2.0749	2.1046	2.6825
Chlorine.....	Cl <sub>2</sub> .....	70.90	2.489	2.491	3.1666
Cyanogen.....	C <sub>2</sub> N <sub>2</sub> .....	52.08	1.7993	1.8064	2.3261
Ethane.....	C <sub>2</sub> H <sub>6</sub> .....	30.048	1.0381	1.075	1.3421
Ethylene.....	C <sub>2</sub> H <sub>4</sub> .....	28.032	0.9784	0.9852	1.2520
Fluorine.....	F <sub>2</sub> .....	38.0	1.313	1.26	1.697
Helium.....	He.....	4	0.1382	0.1368	0.1787
Hydrobromic acid..	HBr.....	80.968	2.7973	2.71	3.6163
Hydrochloric acid..	HCl.....	36.458	1.2595	1.2692	1.6283
Hydrofluoric acid..	HF.....	20.008	0.691	0.7126	0.894
Hydroiodic acid....	HI.....	127.98	4.4172	4.3757	5.7106
Hydrogen.....	H <sub>2</sub> .....	2.016	0.06965	0.06960	0.089873
Hydrogen selenide..	H <sub>2</sub> Se.....	81.216	2.806	2.795	3.627
Hydrogen sulphide..	H <sub>2</sub> S.....	34.076	1.1773	1.1895	1.5230
Hydrogen telluride..	H <sub>2</sub> Te.....	129.62	4.478	4.489	5.789
Krypton.....	Kr.....	81.8	2.826	2.818	3.654
Methane.....	CH <sub>4</sub> .....	16.032	0.5539	0.5576	0.7160
Neon.....	Ne.....	20.	0.691	0.674	0.893
Nitric oxide.....	NO.....	30.04	1.0378	1.0367	1.3402
Nitrous oxide.....	N <sub>2</sub> O.....	44.08	1.5229	1.5301	1.9688
Nitrogen.....	N <sub>2</sub> .....	28.08	0.9701	0.96737	1.2542
atmospheric.....	N <sub>2</sub> + A etc.			0.97209	1.25718
Nitrogen dioxide....	NO <sub>2</sub> .....	46.04	1.5906	1.60 (135°)	2.0563
“ “.....	N <sub>2</sub> O <sub>4</sub> .....	92.08	3.1812	2.65 (26.7°)	4.1126
Nitrosyl chloride...	NOCl.....	65.49	2.2625	2.31	2.925
Oxygen.....	O <sub>2</sub> .....	32.00	1.1055	1.10535	1.4290
Phosphine.....	PH <sub>3</sub> .....	34.024	1.175	1.214	1.520
Propylene.....	C <sub>3</sub> H <sub>6</sub> .....	42.048	1.4527	1.498	1.8780
Silicon fluoride....	SiF <sub>4</sub> .....	104.4	3.607	3.60	4.663
Sulphur dioxide....	SO <sub>2</sub> .....	64.06	2.2131	2.2639	2.8611
Xenon.....	X.....	128	4.422	4.422	5.717

\* A considerable portion of this table is quoted from Landolt-Börnstein Phys.-Chem. Tabellen, 1905, p. 222.

# IV.—PHYSICAL CONSTANTS

Number.	Name.	Sym- bol.	Atomic Weight. O = 16.	Molecu- lar Weight.	Specific Gravity. Water = 1. Air = 1 (A). Hydrogen = 1 (D).	Atomic Vol. At. Wt. Sp. Gr.	Specific Heat at 0° C.
1	Aluminium.....	Al	27.1	.....	2.583 <sup>40</sup>	10.5	.2220
2	Antimony.....	Sb	120.2	.....	6.62	18.2	.0495
3	Argon, gas.....	A	39.9	39.9	{ 1.379 A. 19.96 D.	.....	.1233
4	liquid.....	A	39.9	.....	1.4046—186°	28.5	.....
5	Arsenic, amorph.	As	75.0	300	4.716 <sup>140</sup>	15.9	.0758 (21°—
6	cryst.....	As	75.0	300	5.727 <sup>140</sup>	13.2	.0830 } 65°
7	Barium.....	Ba	137.4	.....	3.75	36.7	.....
8	Bismuth.....	Bi	208.5	.....	9.7474	21.4	.03013
9	Boron, amorph..	B	11.0	.....	2.45	4.5	.3066
10	cryst.....	B	11.0	.....	2.53—2.68	4.2	.....
11	Bromine, gas....	Br <sub>2</sub>	79.96	159.92	5.8691 <sup>800</sup> A.	.....	.0555 (83°)
12	liquid.....	Br <sub>2</sub>	79.96	159.92	3.1883 <sup>90</sup>	25	.1071
13	Cadmium.....	Cd	112.4	112.4	8.642 <sup>170</sup>	13	.0548
14	Caesium.....	Cs	132.9	.....	2.366	56	.04817
15	Calcium.....	Ca	40.1	.....	1.5446 <sup>20-20</sup>	26	.1804
16	Carbon, amorph..	C	12.00	.....	1.75—2.10	6.0	.241
17	graphite.....	C	12.00	.....	2.10—2.585	5.	.202
18	diamond.....	C	12.00	.....	3.47—3.5585	3.4	.1469
19	Cerium.....	Ce	140.25	.....	7.0424	20	.04479
20	Chlorine, gas....	Cl	35.45	70.90	2.491 <sup>0</sup> A.	.....	.1241
21	liquid.....	Cl	35.45	.....	1.4405 <sup>00</sup>	24.6	.2262
22	Chromium.....	Cr	52.1	.....	6.92 <sup>20</sup>	7.6	.10394
23	Cobalt.... [bium)	Co	59.0	.....	8.718 <sup>20</sup>	6.8	.1030
24	Columbium (Nio- Cb	Cb	94.0	.....	7.06 <sup>110</sup>	13.3	.....
25	Copper.....	Cu	63.6	.....	8.91—8.96	7.1	.0936
26	Erbium.....	Er	166	.....	4.77	34.8	.....
27	Fluorine, gas....	F	19	38	1.31 <sup>180</sup> A.	.....	.....
28	liquid.....	F	19	38	1.14—187°	16.7	.....
29	Gadolinium.....	Gd	156	.....	1.31	119.1	.....
30	Gallium.....	Ga	70	.....	5.95 <sup>240</sup>	11.8	.079
31	Germanium.....	Ge	72.5	.....	5.469 <sup>11</sup>	13.3	.0737
32	Glucinum (Beryl- Gl	Gl	9.1	.....	1.85 <sup>200</sup> A.	4.9	.....
33	Gold..... [lium)	Au	197.2	.....	19.32	10.2	.0316
34	Helium, gas.....	He	4	4	{ 0.1368 A 1.98 D.	.....	.....

\* K = the number of grams of water which can be raised from 0° to 1° C. by the heat which passes through a cubic centimeter of the substance in one.

# OF THE ELEMENTS

Number.	At. Ht. at S.P. $\times 10^4$	Electrical Conductivity at 0° C.	Thermal Conductivity $K^*$ at 0° C. $Ag = 1.00$ .	Linear Coefficient of Expansion.		Melting Point, °C.	Boiling Point, °C.
					At °C.		
1	6.02	324000	.3435	.0,2313	40°	657°	1470-1700°
2	5.95	27100	.0442	.0,1152	40°	630°	1500-1700
3	4.92	.....	.0,3894	.....	.....	-187.9°	-186.1°
4	.....	.....	.....	.....	.....	.....	.....
5	5.69	28600	.....	.0,0559	40°	.....	< 360°
6	6.23	.....	.....	.....	.....	sublimes at	449½°
7	.....	.....	.....	.....	.....	850°	vol. 950°
8	6.28	9260	.0177	.0,1346	40°	269°	1435°
9	3.37	.....	.....	.....	.....	infusible	sublimes at 3500°
10	.....	.....	.....	.....	.....	infusible	
11	4.44	.....	.....	.....	.....	.....	.....
12	8.57	.....	.....	.....	.....	-7.3°	59°
13	6.16	146000	.2213	.0,3069	40°	321.7°	778°
14	6.41	25400	.....	.0,39482	27-100°	26.37°	670°
15	7.23	95000	.....	.....	.....	780-810°	.....
16	2.89	.....	.....	.0,054	40°	sublimes	3500°
17	2.22	.....	.....	.0,0786	40°	sublimes	3500°
18	1.76	.....	.....	.0,0118	40°	sublimes	3500°
19	6.28	.....	.....	.....	.....	623°	.....
20	4.40	.....	.....	.....	.....	-102°	-33.6°
21	8.02	.....	.....	.0,1978	0-10°	.....	.....
22	5.42	.....	.....	.....	.....	1515°	.....
23	6.08	83200	.....	.0,1236	40°	1530°	.....
24	.....	.....	.....	.....	.....	1950°	.....
25	5.95	640600	.7198	.0,1678	40°	1084°	2100°
26	.....	.....	.....	.....	.....	1065°(in air)	
27	.....	.....	.....	.....	.....	-223°	-187°
28	.....	.....	.....	.....	.....	-223°	-187°
29	.....	.....	.....	.....	.....	.....	.....
30	5.53	.....	.....	.....	.....	30.15°	.....
31	5.34	.....	.....	.....	.....	900°	vol. 1350°
32	.....	.....	.....	.....	.....	> 960°	.....
33	6.23	468000	.7003	.0,1470	0-100°	1065°	.....
34	.....	.....	.0,3386	.....	.....	< -271.3°	-267

second when the temperature of the opposite sides of the cube are maintained at a difference of 1° C.

Number.	Name.	Sym- bol.	Atomic Weight. O = 16.	Molecu- lar Weight.	Specific Gravity. Water = 1. Air = 1 (A). Hydrogen=1 (D).	Atomic Vol. At. Wt. Sp. Gr.	Specific Heat at 0° C.
1	Hydrogen, gas...	H	1.008	2.016	0.06949 A.	.....	3.410
2	liquid .....	H	1.008	2.016	0.700 <sup>-252.5°</sup>	1.46	.....
3	Indium .....	In	115	.....	7.12 <sup>2</sup>	16.1	.05695
4	Iodine, gas .....	I	126.97	.....	8.72 A.	.....	.0336 <sup>304°</sup>
5	solid .....	I	126.97	253.94	4.948 <sup>17°</sup>	25.7	.05412
6	Iridium, spongy..	Ir	193.0	.....	15.86	12.2	.....
7	crystalline ....	Ir	193.0	.....	22.42	8.6	.0323
8	Iron, pure .....	Fe	55.9	.....	7.85-7.88	7.1	.1162
9	wrought .....	Fe	55.9	.....	7.86	7.1	.1130
10	steel .....	Fe	55.9	.....	7.60-7.80	7.3	.1066
11	gray pig .....	Fe	55.9	.....	7.03-7.13	7.9	.....
12	white pig .....	Fe	55.9	.....	7.58-7.73	7.3	.1050
13	Krypton, gas ...	Kr	81.8	81.8	{ 2.818 A. 40.78 D.	.....	.....
14	liquid .....	Kr	81.8	.....	2.155 <sup>-152°</sup>	37.9	.....
15	Lanthanum .....	La	138.9	.....	6.1545	22.6	.04485
16	Lead .....	Pb	206.9	.....	11.34	18.2	.0310
17	Lithium .....	Li	7.03	.....	0.5936	12	.9408
18	Magnesium .....	Mg	24.36	.....	1.69-1.75	14.3	.2456
19	Manganese .....	Mn	55.0	.....	7.42	7.4	.1217
20	Mercury .....	Hg	200.0	200.0	13.5953 <sup>2</sup>	14.7	.03346
21	Molybdenum .....	Mo	96.0	.....	8.6-9.01	10.9	.0659
22	Neodymium .....	Nd	143.6	.....	6.9563	20.6	.....
23	Neon .....	Ne	20	.....	{ 0.674 A. 9.96 D.	.....	.....
24	Nickel .....	Ni	58.7	.....	8.6-8.93	6.7	.1084
25	Nitrogen, gas...	N	14.04	28.08	0.96737 A.	.....	.2438
26	liquid .....	N	14.04	.....	0.8042 <sup>-195.5°</sup>	17.5	.....
27	Osmium .....	Os	191	.....	22.48	8.5	.03113
28	Oxygen, gas ...	O	16	32	1.10535 A.	.....	.2175
29	liquid .....	O	16	32	1.1181 <sup>-182.5°</sup>	14.3	.....
30	Ozone .....	O <sub>3</sub>	.....	48	1.658 A.	.....	.....
31	Palladium .....	Pd	106.5	.....	11.4-11.9	9.2	.0592
32	Phosphorous, yel.	P	31	124	1.8232 <sup>20°</sup>	17.2	.202
33	red .....	P	31	124	2.11	14.7	.16981
34	liquid .....	P	31	.....	1.764 <sup>44.3°</sup>	.....	.....
35	Platinum .....	Pt	194.8	.....	21.48 <sup>17.5°</sup>	9.2	.0323
36	Potassium .....	K	39.15	.....	0.875 <sup>35°</sup>	44.7	.1662
37	Praseodymium...	Pr	140.5	.....	6.4754	21.6	.....
38	Radium .....	Ra	225	.....	.....	.....	.....
39	Rhodium .....	Rh	103.0	.....	12.1	8.5	.05803
40	Rubidium .....	Rb	85.5	.....	1.522 <sup>15°</sup>	56.3	.....

Number.	At. Heat Sp. Heat At. Wt. $\times$	Electrical Conduc- tivity at 0° C.	Thermal Conductivity K* at 0° C. Ag = 1.00.	Linear Coefficient of Expansion.		Melting Point, °C.	Boiling Point, °C.
					At °C.		
1	3.44		.03270			-256.5°	-252.5°
2	6.05						
3	6.56	119500		.0417	40°	115°	red heat
4	4.27						
5	6.86			.0837	-190-17	114.2°	184.35°
6							
7	6.23			.00700	40°	1950°	
8	6.50	131000	.1665	.01182	0°-100°	1804°	
9	6.32		.2070	.011	0°-100°	1600°	
10	5.96	63000	.1300	.011	0°-100°	1375°	
11		{ 10200-		.01061	40°	1275°	
12	5.87	{ 11300	.1490			1075°	
13						-169°	-151.7°
14							
15	6.23					810°	
16	3.52	50400	.0836	.02924	40°	327°	1400-1600°
17	6.62	119000				186°	> 1400°
18	5.98	230000	.3760	.02694	40°	632.6°	1100°
19	6.70					1245°	
20	6.69	10630	.0148	.0182	0°-100°	-38.85°	357.33°
21	6.33						
22						840°	
23							{ 243° to -233°
24	6.36	144200	.1420	.01279	40°	1484°	
25	3.42		.0524			-210.5°(84	-195.5°
26						[mm.)	
27	5.95	105300		.00657	40°	2500°	
28	3.48		.0563			< -230°	-182.5°
29							
30						decomp. 270°	-119°
31	6.30	97900	.1683	.01176	40°	1535-1586	
32	6.26			.0124	0°-44°	44.2°	290°
33	5.26					350° (yel.)	
34							
35	6.29	91200	.1664	.00899	40°	1710-1780°	
36	6.51	150500		.083	0°-50°	62.5°	757.5°
37						940°	
38							
39	5.97			.00850	40°	1650-2000°	
40						38.5°	696°

Number.	Name.	Sym- bol.	Atomic Weight. O = 16.	Molecu- lar Weight.	Specific Gravity. Water = 1. Air = 1 (A). Hydrogen = 1 (D).	Atomic Vol. At. Wt. Sp. Gr.	Specific Heat at 0° C.
1	Ruthenium, spon.	Ru	101.7	.....	8.6	11.8	.....
2	melted.....	Ru	101.7	.....	11.4	8.9	.....
3	cryst.....	Ru	101.7	.....	12.26°	8.3	.0611
4	Samarium.....	Sm	150.3	.....	7.7-7.8	19.4	.....
5	Scandium.....	Sc	44.1	.....	.....	.....	.....
6	Selenium, amorph.	Se	79.2	633.6	4.26-4.28 <sup>25°</sup>	18.5	.09533
7	monoclinic....	Se	79.2	633.6	4.47 <sup>25°</sup>	17.7	.08401
8	hexagonal....	Se	79.2	633.6	4.8 <sup>25°</sup>	16.5	.....
9	Silicon, amorph..	Si	28.4	.....	2.00	14.2	.....
10	cryst.....	Si	28.4	.....	2.49 <sup>10°</sup>	11.4	.1697 <sup>22°</sup>
11	Silver.....	Ag	107.93	.....	10.53	10.2	.0559
12	Sodium.....	Na	23.05	.....	0.9735 <sup>13.5°</sup>	23.7	.2934
13	Strontium.....	Sr	87.6	.....	2.54	34.5	.....
	Sulphur,						
14	amorphous soft	S	32.06	256.48	1.9556°	16.4	.....
15	"  yellow	S	32.06	256.48	2.046	15.6	.....
16	rhombic.....	S <sub>8</sub>	32.06	256.48	2.05-2.07°	15.6	.163
17	monoclinic....	S <sub>8</sub>	32.06	256.48	1.958	16.4	.....
18	plastic.....	S <sub>8</sub>	32.06	256.48	1.92	16.7	.....
19	Tantalum.....	Ta	183	.....	12.79	143	.....
20	Tellurium, amorp.	Te	127.6	255.2	6.015 <sup>20°</sup>	21.2	.....
21	cryst.....	Te	127.6	255.2	6.27	20.4	.0475
22	Terbium.....	Tb	160	.....	.....	.....	.....
23	Thallium.....	Tl	204.1	.....	11.85	17.2	.0326
24	Thorium, amorph.	Th	232.5	.....	11.007°	21.1	.....
25	cryst.....	Th	232.5	.....	11.23	20.7	.....
26	Thulium.....	Tm	171	.....	.....	.....	.....
27	Tin, gray.....	Sn	119.0	.....	5.8466 <sup>15°</sup>	20.3	.0545
28	rhombic.....	Sn	119.0	.....	6.53-6.56	18.2	.0559
29	tetragonal....	Sn	119.0	.....	7.2984 <sup>15°</sup>	16.3	.0559
30	Titanium.....	Ti	48.1	.....	3.543	13.6	.1125
31	Tungsten.....	W	184	.....	18.77	9.8	.0336
32	Uranium.....	U	238.5	.....	18.685 <sup>15°</sup>	12.8	.0280
33	Vanadium.....	V	51.2	.....	5.87 <sup>15°</sup>	8.7	.1153
34	Xenon, gas.....	Xe	128	.....	{ 4.422 A. 63.5 D	.....	.....
35	liquid.....	Xe	128	.....	3.52-109.1°	49.1	.....
36	Ytterbium.....	Yb	173.0	.....	.....	.....	.....
37	Yttrium.....	Yt	89.0	.....	3.80 <sup>15°</sup>	23.4	.....
38	Zinc.....	Zn	65.4	.....	7.142 <sup>16°</sup>	9.2	.09356
39	Zirconium, amorp.	Zr	90.6	.....	4.15	21.8	.....
40	cryst.....	Zr	90.6	.....	5.3	17.1	.0660



Number.	At. Heat Sp. Heat × At. Wt.	Electrical Conduc- tivity at 0° Wt.	Thermal Conductivity K* at 0° C. Ag = 1.00.	Linear Coefficient of Expansion.		Melting Point, °C.	Boiling Point, °C.
					At °C.		
1	...	...	...	...	...	> 1950°	...
2	...	...	...	...	...	2000°	...
3	6.21	...	...	.0,0963	40°	2000°	...
4	...	...	...	...	...	...	...
5	...	...	...	...	...	...	...
6	7.55	...	...	...	...	50°	690°
7	6.65	...	...	.0,3680	40°	170°-180°	690°
8	...	...	...	...	...	217°	690°
9	...	...	...	...	...	...	3500°
10	4.82	200-15600	...	.0,0763	40°	1200°	3500°
11	6.04	681200	1.000	.0,1921	40°	961.5°	2050°
12	6.76	211000	.365	.0,72	0°-50°	97.6°	877.5°
13	...	40300	...	...	...	900°	...
14	...	...	...	...	...	> 120°	444.6°
15	...	...	...	...	...	...	444.6°
16	5.23	...	...	.0,6413	40°	114.5°	444.6°
17	...	...	...	...	...	119.25°	444.6°
18	...	...	...	...	...	...	444.6°
19	...	60600	...	.0,08	...	2250°	...
20	...	...	...	.0,1675	40°	446°	1390°
21	6.07	46600	...	.0,3440	0°-20°	452°	1390°
22	...	...	...	...	...	...	...
23	6.65	56800	...	.0,3021	40°	301.7°	1600-1800
24	...	...	...	...	...	...	...
25	...	...	...	...	...	...	...
26	...	...	...	...	...	...	...
27	6.49	...	...	...	...	stable < 20°	...
28	6.65	...	...	...	...	stable > 170°	...
29	6.65	76600	.1528	.0,2234	40°	232°	1450-1600
30	5.41	...	...	...	...	3000°	...
31	6.18	...	...	...	...	1700°	...
32	6.68	...	...	...	...	800°	...
33	5.90	...	...	...	...	1680°	...
34	...	...	...	...	...	-140°	-109.1°
35	...	...	...	...	...	...	...
36	...	...	...	...	...	...	...
37	...	...	...	...	...	...	...
38	6.12	186000	.2653	.0,2918	40°	419°	918°
39	...	...	...	...	...	1500°	...
40	5.98	...	...	...	...	...	...

# V.—GRAVIMETRIC FACTORS AND THEIR LOGARITHMS

A	Weighed or Found.	Required.	A*		B†	
B	Required.	Weighed or Found.	Factor.	Logarithm.	Factor.	Logarithm.
<b>Aluminium,</b> Al = 27.1						
Al <sub>2</sub> O <sub>3</sub> .....	Al.....	0.53033	I. 72455	1.88561	0.27545	
	Al <sub>4</sub> C <sub>3</sub> .....	0.70646	I. 84909	1.41550	0.15091	
	AlCl <sub>3</sub> .....	2.61155	0.41690	0.38291	I. 58310	
	AlPO <sub>4</sub> .....	2.38943	0.37829	0.41851	I. 62171	
	Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	3.35010	0.52506	0.29850	I. 47494	
	Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .18H <sub>2</sub> O.....	6.52348	0.81446	0.15330	I. 18554	
	K <sub>2</sub> SO <sub>4</sub> .Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> . 24H <sub>2</sub> O.....	9.28737	0.96786	0.10769	I. 03214	
	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> . 24H <sub>2</sub> O.....	8.87460	0.94815	0.12682	I. 05185	
AlPO <sub>4</sub> .....	Al.....	0.22195	I. 34625	4.5056	0.65375	
	Al <sub>2</sub> O <sub>3</sub> .....	0.41851	I. 62171	2.3894	0.37829	
CaF <sub>2</sub> .....	AlF <sub>3</sub> .....	0.71790	I. 85606	1.3930	0.14394	
P <sub>2</sub> O <sub>5</sub> .....	AlPO <sub>4</sub> .....	1.71973	0.23546	0.58148	I. 76454	
<b>Ammonium,</b> NH <sub>4</sub> = 18.072						
Ag.....	NH <sub>4</sub> Br.....	0.90830	I. 95823	1.10095	0.04177	
	NH <sub>4</sub> Cl.....	0.49591	I. 69540	2.01650	0.30460	
	NH <sub>4</sub> I.....	1.34383	0.12835	0.74413	I. 87165	
AgBr.....	NH <sub>4</sub> Br.....	0.52175	I. 71746	1.91664	0.28254	
AgCl.....	NH <sub>4</sub> Cl.....	0.37329	I. 57205	2.67887	0.42795	
AgI.....	NH <sub>4</sub> I.....	0.61777	I. 79083	1.61870	0.20917	
BaSO <sub>4</sub> .....	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .....	0.56627	I. 75303	1.76592	0.24697	
Br.....	NH <sub>4</sub> Br.....	1.22600	0.08850	0.81563	I. 91150	
Cl.....	NH <sub>4</sub> .....	0.50979	I. 70739	1.96159	0.29261	
	NH <sub>4</sub> Cl.....	1.50979	0.17892	0.66234	I. 82108	
HCl.....	NH <sub>4</sub> Cl.....	1.46803	0.16674	0.68118	I. 83326	
I.....	NH <sub>4</sub> I.....	1.1423	0.05779	0.87540	I. 94221	
MgNH <sub>4</sub> PO <sub>4</sub> .6H <sub>2</sub> O.....	NH <sub>3</sub> .....	0.06950	2.84198	1.43913	0.15802	
	NH <sub>4</sub> .....	0.07360	2.86691	1.35859	0.13309	
	(NH <sub>4</sub> ) <sub>2</sub> O.....	0.01062	2.02607	9.41740	0.97393	
N.....	NH <sub>3</sub> .....	1.21537	0.08471	0.82280	I. 91529	
	NH <sub>4</sub> .....	1.28718	0.10964	0.77688	I. 89036	
	NH <sub>4</sub> Cl.....	3.81217	0.58117	0.26232	I. 41883	
	(NH <sub>4</sub> ) <sub>2</sub> O.....	1.88974	0.27640	0.52917	I. 72360	
	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .....	4.79111	0.68044	0.20872	I. 31956	

\* See end of this Table for notes on A and B.

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Logarithm.	Factor.	Logarithm.
<b>Ammonium</b>						
NH <sub>3</sub> .....	(NH <sub>4</sub> ) <sub>2</sub> CO <sub>3</sub> .....	2.8172	0.44982	0.35495	I.55018	
	NH <sub>4</sub> HCO <sub>3</sub> .....	4.6343	0.66599	0.21578	I.33401	
	NH <sub>4</sub> NO <sub>3</sub> .....	4.6948	0.67162	0.21300	I.32838	
	(NH <sub>4</sub> ) <sub>2</sub> O.....	1.5279	0.18409	0.65450	I.81591	
	NH <sub>4</sub> OH.....	2.0558	0.31298	0.48643	I.68702	
	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .....	3.8737	0.58813	0.25815	I.41187	
NH <sub>4</sub> Cl.....	NH <sub>3</sub> .....	0.31882	I.50354	3.13661	0.49646	
	NH <sub>4</sub> .....	0.33765	I.52847	2.96160	0.47153	
	(NH <sub>4</sub> ) <sub>2</sub> O.....	0.48711	I.68763	2.05290	0.31237	
	NH <sub>4</sub> OH.....	0.65541	I.81652	1.52575	0.18348	
(NH <sub>4</sub> ) <sub>2</sub> PtCl <sub>6</sub> ....	NH <sub>3</sub> .....	0.07692	2.88604	13.0006	1.11396	
	NH <sub>4</sub> .....	0.08147	2.91101	12.2742	1.08899	
	NH <sub>4</sub> Cl.....	0.24129	I.38254	4.14440	0.61746	
	NH <sub>4</sub> NO <sub>3</sub> .....	0.36116	I.55770	2.76887	0.44230	
	(NH <sub>4</sub> ) <sub>2</sub> O.....	0.11753	I.07017	8.50800	0.92983	
	NH <sub>4</sub> OH.....	0.15815	I.19906	6.32329	0.80094	
	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .....	0.29799	I.47421	3.35577	0.52579	
	NH <sub>3</sub> .....	0.46803	I.67028	2.13660	0.32972	
N <sub>2</sub> O <sub>5</sub> .....	NH <sub>4</sub> NO <sub>3</sub> .....	1.48243	0.17097	0.67457	I.82903	
	(NH <sub>4</sub> ) <sub>2</sub> O.....	0.48244	I.68345	2.07276	0.31655	
	NH <sub>3</sub> .....	0.17520	I.24352	5.70800	0.75648	
Pt.....	NH <sub>3</sub> .....	0.18558	I.26854	5.38838	0.73146	
	NH <sub>4</sub> Cl.....	0.54951	I.73998	1.81979	0.26002	
	NH <sub>4</sub> NO <sub>3</sub> .....	0.82250	I.91514	1.21580	0.08486	
	(NH <sub>4</sub> ) <sub>2</sub> O.....	0.26767	I.42761	3.73583	0.57239	
	NH <sub>4</sub> OH.....	0.36017	I.55650	2.77650	0.44350	
	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .....	0.67865	I.83165	1.47350	0.16835	
	NH <sub>3</sub> .....	0.42627	I.62969	2.34589	0.37031	
	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .....	1.65127	0.21782	0.60559	I.78218	
<b>Antimony, Sb = 120.2</b>						
Sb.....	Sb <sub>2</sub> O <sub>3</sub> .....	1.19969	0.07907	0.83354	I.92093	
	Sb <sub>2</sub> O <sub>5</sub> .....	1.33279	0.12476	0.75031	I.87524	
	KSbOC <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .½H <sub>2</sub> O	2.68219	0.42849	0.37283	I.57151	
Sb <sub>2</sub> O <sub>3</sub> .....	Sb <sub>2</sub> O <sub>5</sub> .....	1.11095	0.04569	0.90013	I.95431	
	Sb <sub>2</sub> S <sub>5</sub> .....	1.38939	0.14282	0.71975	I.85718	
	KSbOC <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .½H <sub>2</sub> O	2.23574	0.34942	0.44728	I.65058	
Sb <sub>2</sub> O <sub>4</sub> .....	Sb.....	0.78975	I.89749	1.26623	0.10251	
	Sb <sub>2</sub> O <sub>3</sub> .....	0.94745	I.97656	1.05546	0.02344	
	Sb <sub>2</sub> O <sub>5</sub> .....	1.05256	0.02225	0.95006	I.97775	
	Sb <sub>2</sub> S <sub>5</sub> .....	1.10573	0.04365	0.90438	I.95635	

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Logarithm.	Factor.	Logarithm.
<b>Antimony</b>						
Sb <sub>2</sub> O <sub>4</sub> .....	Sb <sub>2</sub> S <sub>5</sub> .....	Sb <sub>2</sub> S <sub>5</sub> .....	1.31636	0.11938	0.75966	1.88062
		KSbOC <sub>4</sub> H <sub>4</sub> O <sub>6</sub> . $\frac{1}{2}$ H <sub>2</sub> O	2.11825	0.32598	0.47209	1.67402
Sb <sub>2</sub> O <sub>5</sub> .....	Sb <sub>2</sub> S <sub>5</sub> .....	Sb <sub>2</sub> S <sub>5</sub> .....	1.25063	0.09713	0.79960	1.90287
		Sb.....	0.71423	1.85384	1.40097	0.14616
Sb <sub>2</sub> S <sub>3</sub> .....	Sb.....	Sb.....	0.85685	1.93291	1.16705	0.06709
		Sb <sub>2</sub> O <sub>3</sub> .....	0.95192	1.97860	1.05051	0.02140
Sb <sub>2</sub> O <sub>5</sub> .....	Sb.....	Sb.....	1.91570	0.28233	0.52200	1.71767
		KSbOC <sub>4</sub> H <sub>4</sub> O <sub>6</sub> . $\frac{1}{2}$ H <sub>2</sub> O	0.59994	1.77811	1.66681	0.22189
<b>Arsenic,</b>						
<b>As = 75</b>						
As <sub>2</sub> O <sub>3</sub> .....	As.....	As.....	0.75758	1.87943	1.3201	0.12057
		As <sub>2</sub> O <sub>5</sub> .....	1.16162	0.06506	0.86088	1.93494
As <sub>2</sub> O <sub>5</sub> .....	As.....	As.....	0.65217	1.81436	1.53384	0.18564
		As.....	0.60931	1.78484	1.64119	0.21516
As <sub>2</sub> S <sub>3</sub> .....	As.....	As.....	0.80429	1.90541	1.24334	0.09459
		As <sub>2</sub> O <sub>3</sub> .....	0.93428	1.97048	1.07034	0.02952
As <sub>2</sub> S <sub>5</sub> .....	As.....	As.....	1.26046	0.10053	0.79336	1.89947
		As.....	0.48340	1.68431	2.06867	0.31569
As <sub>2</sub> S <sub>5</sub> .....	As.....	As.....	0.63809	1.80438	1.56718	0.19512
		As <sub>2</sub> O <sub>5</sub> .....	0.74122	1.86995	1.34912	0.13005
BaSO <sub>4</sub> .....	As.....	As.....	0.21416	1.33075	4.66933	0.66925
		As <sub>2</sub> O <sub>3</sub> .....	0.28270	1.45133	3.53725	0.54867
BaSO <sub>4</sub> .....	As.....	As.....	0.32839	1.51639	3.04514	0.48361
		AsO <sub>3</sub> .....	0.35124	1.54560	2.84707	0.45440
BaSO <sub>4</sub> .....	As.....	AsO <sub>4</sub> .....	0.39692	1.59870	2.51941	0.40130
		As.....	0.39382	1.59530	2.53923	0.40470
MgNH <sub>4</sub> AsO <sub>4</sub> . $\frac{1}{2}$ H <sub>2</sub> O.....	As.....	As.....	0.51985	1.71588	1.92361	0.28412
		AsO <sub>3</sub> .....	0.64587	1.81015	1.54829	0.18985
MgNH <sub>4</sub> AsO <sub>4</sub> . $\frac{1}{2}$ H <sub>2</sub> O.....	As.....	As.....	0.60386	1.78094	1.65600	0.21906
		AsO <sub>3</sub> .....	0.72988	1.86325	1.37009	0.13675
Mg <sub>2</sub> As <sub>2</sub> O <sub>7</sub> .....	As.....	As.....	0.48275	1.68372	2.07148	0.31628
		As <sub>2</sub> O <sub>3</sub> .....	0.63723	1.80430	1.56929	0.19570
Mg <sub>2</sub> As <sub>2</sub> O <sub>7</sub> .....	As.....	AsO <sub>3</sub> .....	0.79171	1.89857	1.26309	0.10143
		As <sub>2</sub> O <sub>5</sub> .....	0.74021	1.86936	1.35094	0.13064
Mg <sub>2</sub> As <sub>2</sub> O <sub>7</sub> .....	As.....	AsO <sub>4</sub> .....	0.89468	1.95167	1.11769	0.04833
		As <sub>2</sub> S <sub>3</sub> .....	0.79228	1.89888	1.26218	0.10112
<b>Barium,</b>						
<b>Ba = 137.4</b>						
BaCO <sub>3</sub> .....	Ba.....	Ba.....	0.69605	1.84264	1.43668	0.15736
		Ba(HCO <sub>3</sub> ) <sub>2</sub> .....	1.31415	0.11865	0.76093	1.88135

A	Weighed or Found.	Required.	A		B		
B	Required.	Weighed or Found.	Factor.	Logarithm.	Factor.	Logarithm.	
Barium							
BaCO <sub>3</sub> .....		BaCl <sub>2</sub> .....	1.05522	0.02334	0.94767	1.97666	
		BaO.....	0.77710	1.89048	1.28682	0.10952	
BaCrO <sub>4</sub> .....		Ba.....	0.54201	1.73401	1.84496	0.26599	
		BaCl <sub>2</sub> .....	0.82170	1.91471	1.21700	0.08529	
		BaCO <sub>3</sub> .....	0.77870	1.89137	1.28418	0.10863	
		BaO.....	0.60513	1.78185	1.69104	0.21815	
BaSiF <sub>6</sub> .....		Ba.....	0.49107	1.69114	2.03638	0.30886	
		BaF <sub>2</sub> .....	0.62687	1.79718	1.59522	0.20282	
		BaO.....	0.54825	1.73898	1.82400	0.26102	
BaSO <sub>4</sub> .....		Ba.....	0.58854	1.76977	1.69916	0.23023	
		BaCl <sub>2</sub> .....	0.89223	1.95048	1.12077	0.04952	
		BaCl <sub>2</sub> .2H <sub>2</sub> O.....	1.04657	0.01977	0.95550	1.98023	
		BaCO <sub>3</sub> .....	0.84554	1.92713	1.18269	0.07237	
		Ba(NO <sub>3</sub> ) <sub>2</sub> .....	1.12002	0.04923	0.89284	1.95077	
		BaO.....	0.65707	1.81761	1.52186	0.18239	
		BaO <sub>2</sub> .....	0.72561	1.86070	1.37816	0.13930	
		BaS.....	0.72586	1.86085	1.37769	0.13915	
		CO <sub>2</sub> .....	BaO.....	3.48642	0.54238	0.28682	1.45762
			BaCO <sub>3</sub> .....	4.48640	0.65190	0.22290	1.34810
Beryllium, Be=9.1 See Glucinum							
Bismuth, Bi=208.5							
Bi.....		Bi <sub>2</sub> O <sub>3</sub> .....	1.11510	0.04731	0.89678	1.95269	
BiAsO <sub>4</sub> .....		Bi.....	0.60001	1.77816	1.66663	0.22184	
		Bi <sub>2</sub> O <sub>3</sub> .....	0.66906	1.82547	1.49463	0.17453	
Bi <sub>2</sub> O <sub>3</sub> .....		Bi.....	0.89677	1.95268	1.11513	0.04732	
		BiONO <sub>3</sub> .....	1.23243	0.09076	0.81140	1.90924	
		Bi(NO <sub>3</sub> ) <sub>3</sub> .5H <sub>2</sub> O.....	2.08482	0.31907	0.47965	1.68093	
BiOCl.....		Bi.....	0.80208	1.90422	1.24674	0.09578	
		BiONO <sub>3</sub> .....	1.10227	0.04229	0.90722	1.95771	
		Bi(NO <sub>3</sub> ) <sub>3</sub> .5H <sub>2</sub> O.....	1.86457	0.27058	0.53631	1.72942	
		Bi <sub>2</sub> O <sub>3</sub> .....	0.89440	1.95153	1.11808	0.04847	
Bi <sub>2</sub> S <sub>3</sub> .....		Bi.....	0.81258	1.90987	1.23040	0.09013	
		Bi <sub>2</sub> O <sub>3</sub> .....	0.90612	1.95718	1.10362	0.04282	
Boron, B=11							
B <sub>2</sub> O <sub>3</sub> .....		B.....	0.31429	1.49732	3.18186	0.50268	
		H <sub>3</sub> BO <sub>3</sub> .....	1.77212	0.24849	0.56430	1.75151	
		Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> .10H <sub>2</sub> O.....	5.46113	0.73728	0.18311	1.26272	
KBF <sub>4</sub> .....		B.....	0.08720	2.94051	11.4682	2.05949	
		B <sub>2</sub> O <sub>3</sub> .....	0.27745	1.44318	3.60431	0.55682	

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Logarithm.	Factor.	Logarithm.
<b>Boron</b>						
KBF <sub>4</sub> .....		H <sub>3</sub> BO <sub>3</sub> .....	0.49167	I.69167	2.03390	0.30833
		Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> ·10H <sub>2</sub> O....	0.75758	I.87943	1.32000	0.12057
<b>Bromine,</b> Br=79.96						
Ag.....		Br.....	0.74085	I.86973	1.34981	0.13027
		BrO <sub>3</sub> .....	1.18564	0.07395	0.84343	I.92605
		HBr.....	0.75018	I.87517	1.33300	0.12483
AgBr.....		Br.....	0.42557	I.62897	2.34983	0.37103
		BrO <sub>3</sub> .....	0.68105	I.83318	1.46831	0.16682
		HBr.....	0.43092	I.63440	2.32058	0.36560
Br.....		O.....	0.10005	I.00022	9.99500	0.99978
<b>Cadmium,</b> Cd=112.4						
Cd.....		CdCl <sub>2</sub> .....	1.63077	0.21239	0.61321	I.78761
		Cd(NO <sub>3</sub> ) <sub>2</sub> .....	2.10386	0.32302	0.47531	I.67698
CdO.....		Cd.....	0.87542	I.94220	1.14234	0.05780
		CdCl <sub>2</sub> .....	1.42781	0.15459	0.70050	I.84541
		Cd(NO <sub>3</sub> ) <sub>2</sub> .....	1.84171	0.26522	0.54298	I.73478
CdS.....		Cd.....	0.77806	I.89102	1.28524	0.10898
		CdCl <sub>2</sub> .....	1.26885	0.10341	0.78811	I.89659
		Cd(NO <sub>3</sub> ) <sub>2</sub> .....	1.63712	0.21402	0.61091	I.78598
		CdO.....	0.88884	I.94882	1.12508	0.05118
CdSO <sub>4</sub> .....		Cd.....	0.53919	I.73174	1.85465	0.26826
		CdCl <sub>2</sub> .....	0.87928	I.94413	1.13729	0.05587
		Cd(NO <sub>3</sub> ) <sub>2</sub> .....	1.13438	0.05476	0.88153	I.94524
		CdO.....	0.61594	I.78954	1.62352	0.21046
<b>Caesium,</b> Cs=132.9						
AgCl.....		CsCl.....	1.17414	0.06972	0.85168	I.93028
Cl.....		Cs.....	3.74883	0.57390	0.26674	I.42610
		CsCl.....	4.74911	0.67659	0.21057	I.32341
Cs.....		CsCl.....	1.26674	0.10269	0.78942	I.89731
		Cs <sub>2</sub> CO <sub>3</sub> .....	1.54311	0.18840	0.64803	I.81160
		Cs <sub>2</sub> O.....	1.06020	0.02539	0.94322	I.97461
Cs <sub>2</sub> O.....		CsCl.....	1.19481	0.07730	0.83695	I.92270
		Cs <sub>2</sub> SO <sub>4</sub> .....	1.28409	0.10860	0.77858	I.89130
Cs <sub>2</sub> PtCl <sub>6</sub> .....		Cs.....	0.39476	I.59634	2.53312	0.40366
		CsCl.....	0.50007	I.69903	1.99995	0.30097
		Cs <sub>2</sub> CO <sub>3</sub> .....	0.48388	I.68474	2.06662	0.31526
		Cs <sub>2</sub> O.....	0.41853	I.62173	2.38928	0.37827
Cs <sub>2</sub> SO <sub>4</sub> .....		Cs.....	0.73453	I.86601	1.36141	0.13399

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Logarithm.	Factor.	Logarithm.
Caesium						
Cs <sub>2</sub> SO <sub>4</sub> .....		CsCl.....	0.93046	I.96870	1.07423	0.03130
		Cs <sub>2</sub> CO <sub>3</sub> .....	0.90034	I.95441	1.11069	0.04559
		Cs <sub>2</sub> O.....	0.77875	I.89140	1.28409	0.10860
		Cs <sub>2</sub> O.....	3.51983	0.54652	0.28411	I.45348
SO <sub>3</sub> .....						
Calcium, Ca = 40.1						
BaSO <sub>4</sub> .....		CaS.....	0.30909	I.49009	3.23529	0.50991
		CaSO <sub>4</sub> .....	0.58323	I.76584	1.71460	0.23416
		CaSO <sub>4</sub> .2H <sub>2</sub> O.....	0.73756	I.86780	1.35581	0.13220
		Ca.....	2.76807	0.44218	0.36126	I.55782
Ca.....		CaO.....	1.39900	0.14582	0.71480	I.85418
		Ca.....	0.40060	I.60271	2.49628	0.39729
		CaCl <sub>2</sub> .....	1.10890	0.04489	0.90180	I.95511
		Ca(HCO <sub>3</sub> ) <sub>2</sub> .....	1.61950	0.20938	0.61747	I.79062
CaCO <sub>3</sub> .....		CaO.....	0.56044	I.74853	1.78432	0.25147
		CaSO <sub>4</sub> .....	1.36024	0.13362	0.73515	I.86638
		CaSO <sub>4</sub> .2H <sub>2</sub> O.....	1.72020	0.23558	0.58132	I.76442
		HCl.....	0.72845	I.86240	1.37278	0.13760
		Ca.....	0.71480	I.85418	1.39900	0.14582
		CaCl <sub>2</sub> .....	1.97859	0.29636	0.50540	I.70364
		CaCO <sub>3</sub> .....	1.78432	0.25147	0.56044	I.74853
		Ca(HCO <sub>3</sub> ) <sub>2</sub> .....	2.88967	0.46085	0.34604	I.53915
		CaSO <sub>4</sub> .....	2.42711	0.38509	0.41201	I.61495
		CaSO <sub>4</sub> .2H <sub>2</sub> O.....	3.06936	0.48705	0.32580	I.51291
Ca <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> .....		CaO.....	0.54237	I.73430	1.84370	0.26570
		CaSO <sub>4</sub> .....	1.31639	0.11939	0.75965	I.88061
		Ca.....	0.29450	I.46909	3.39554	0.53091
		CaCl <sub>2</sub> .....	0.81521	I.91127	1.22669	0.08873
CaSO <sub>4</sub> .....		CaCO.....	0.73515	I.86638	1.36025	0.13362
		CaF <sub>2</sub> .....	0.57359	I.75860	1.74367	0.24140
		CaO.....	0.41201	I.61491	2.42711	0.38509
		Ca.....	0.56557	I.75249	1.76812	0.24751
Cl.....		CaCl <sub>2</sub> .....	1.56557	0.19467	0.63875	I.80533
		CaO.....	0.79123	I.89831	1.26383	0.10169
		CaO.....	1.27500	0.10551	0.78431	I.89449
		CaCO <sub>3</sub> .....	2.27500	0.35698	0.43956	I.64302
CO <sub>2</sub> .....		Ca <sub>3</sub> (AsO <sub>4</sub> ) <sub>2</sub> .....	1.28188	0.10784	0.78011	I.89216
		CaO.....	1.39000	0.14301	0.71943	I.85699
		Ca <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> .....	1.39323	0.14402	0.71776	I.85598
Mg <sub>3</sub> As <sub>2</sub> O <sub>7</sub> .....		Ca <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> .....	0.08265	Z.91724	0.12099	Z.08276
MgO.....		Ca(NO <sub>3</sub> ) <sub>2</sub> .....	1.51904	0.18157	0.65831	I.81843
Mg <sub>3</sub> P <sub>2</sub> O <sub>7</sub> .....						
(NH <sub>4</sub> ) <sub>3</sub> PO <sub>4</sub> .....						
12MoO <sub>3</sub> .....						
N <sub>2</sub> O <sub>5</sub> .....						

A	Weighted or Found.	Required.	A		B	
B	Required.	Weighted or Found.	Factor.	Logarithm.	Factor.	Logarithm.
<b>Calcium</b>						
P <sub>2</sub> O <sub>5</sub> .....		Ca <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> .....	2.18520	0.33949	0.45762	I.66051
SO <sub>3</sub> .....		CaO.....	0.70071	I.84554	1.42713	0.15446
		CaSO <sub>4</sub> .....	1.70072	0.23063	0.58799	I.76937
		CaSO <sub>4</sub> ·2H <sub>2</sub> O.....	2.15075	0.33259	0.46495	I.66741
WO <sub>3</sub> .....		CaWO <sub>4</sub> .....	1.24180	0.09405	0.80528	I.90595
<b>Carbon, C=12.00</b>						
Ag.....		HCN.....	0.25061	I.39900	3.99027	0.60100
		KCN.....	0.60400	I.78104	1.65562	0.21896
AgCN.....		HCN.....	0.20190	I.30514	4.95289	0.69486
		KCN.....	0.48661	I.68718	2.05505	0.31282
BaCO <sub>3</sub> .....		C.....	0.06079	Z.78383	16.4500	1.21617
		CO <sub>2</sub> .....	0.22290	I.34811	4.48623	0.65189
		CO <sub>3</sub> .....	0.30395	I.48280	3.29000	0.51720
BaO.....		CO <sub>2</sub> .....	0.28683	I.45763	3.48633	0.54237
		CO <sub>2</sub> .....				
		(bicarbonate)	0.57366	I.75866	1.74316	0.24134
CaO.....		CO <sub>2</sub> .....	0.78431	I.89449	1.27500	0.10551
		CO <sub>2</sub> .....				
		(bicarbonate)	1.56863	0.19552	0.63165	I.80448
CO <sub>2</sub> .....		BaCO <sub>3</sub> .....	4.48870	0.65212	0.22278	I.34788
		Ba(HCO <sub>3</sub> ) <sub>2</sub> .....	2.94793	0.46952	0.33922	I.53048
		C.....	0.27273	I.43573	3.66676	0.56427
		CaCO <sub>3</sub> .....	2.27500	0.35698	0.43956	I.64302
		Ca(HCO <sub>3</sub> ) <sub>2</sub> .....	1.97859	0.29636	0.50540	I.70364
		CO.....	1.36365	0.13470	0.73333	I.86530
		Cs <sub>2</sub> CO <sub>3</sub> .....	7.40450	0.86950	0.13536	I.13050
		CsHCO <sub>3</sub> .....	4.40730	0.64417	0.22690	I.35583
		FeCO <sub>3</sub> .....	2.63406	0.42063	0.37964	I.57937
		Fe(HCO <sub>3</sub> ) <sub>2</sub> .....	2.02181	0.30574	0.49461	I.69426
		K <sub>2</sub> CO <sub>3</sub> .....	3.14321	0.49737	0.31815	I.50263
		KHCO <sub>3</sub> .....	2.27626	0.35722	0.43932	I.64278
		K <sub>2</sub> O.....	2.14305	0.33106	0.46660	I.66894
		Li <sub>2</sub> CO <sub>3</sub> .....	1.68319	0.22613	0.59411	I.77387
		LiHCO <sub>3</sub> .....	1.54625	0.18930	0.64670	I.81070
		Li <sub>2</sub> O.....	0.68318	I.83454	1.46373	0.16546
		MgCO <sub>3</sub> .....	1.91730	0.28269	0.52157	I.71731
		Mg(HCO <sub>3</sub> ) <sub>2</sub> .....	1.66339	0.22099	0.60118	I.77901
		MgO.....	0.91728	I.96250	1.09018	0.03750
		MnCO <sub>3</sub> .....	2.61353	0.41725	0.38261	I.58275
		Mn(HCO <sub>3</sub> ) <sub>2</sub> .....	4.02309	0.60456	0.24856	I.39544
		MnO.....	1.61367	0.20781	0.61971	I.79219



A	Weighed or Found.	Required.	A		B		
B	Required.	Weighed or Found.	Factor.	Logarithm.	Factor.	Logarithm.	
<b>Carbon</b>							
CO <sub>2</sub> .....		Na <sub>2</sub> CO <sub>3</sub> .....	2.41138	0.38227	0.41470	I.61773	
		NaHCO <sub>3</sub> .....	1.91043	0.28113	0.52344	I.71887	
		Na <sub>2</sub> O.....	1.41137	0.14964	0.70853	I.85036	
		(NH <sub>4</sub> ) <sub>2</sub> CO <sub>3</sub> .....	2.18510	0.33947	0.45764	I.66053	
		NH <sub>4</sub> HCO <sub>3</sub> .....	1.79732	0.25462	0.55639	I.74538	
		Rb <sub>2</sub> CO <sub>3</sub> .....	5.25000	0.72016	0.19048	I.27984	
		RbHCO <sub>3</sub> .....	3.32977	0.52241	0.30032	I.47759	
		Rb <sub>2</sub> O.....	4.24550	0.62793	0.23554	I.37207	
		SrCO <sub>3</sub> .....	3.35462	0.52564	0.29810	I.47436	
		Sr(HCO <sub>3</sub> ) <sub>2</sub> .....	2.38200	0.37694	0.41982	I.62306	
		SrO.....	2.35455	0.37191	0.42471	I.62809	
<b>Cerium, Ce=140.25</b>							
Ce.....		Ce(NO <sub>3</sub> ) <sub>4</sub> .....	2.76944	0.44239	0.36108	I.55761	
		Ce(NO <sub>3</sub> ) <sub>4</sub> (NH <sub>4</sub> NO <sub>3</sub> ) <sub>2</sub> .H <sub>2</sub> O	4.04145	0.60654	0.24743	I.39346	
		Ce <sub>2</sub> O <sub>3</sub> .....	1.17114	0.06861	0.85385	I.93139	
		CeO <sub>2</sub> .....	1.22817	0.08926	0.81421	I.91074	
		Ce(SO <sub>4</sub> ) <sub>3</sub> .....	2.02741	0.30694	0.49324	I.69306	
		Ce <sub>2</sub> O <sub>3</sub> .....	Ce(NO <sub>3</sub> ) <sub>4</sub> .....	2.36472	0.37378	0.42356	I.62692
		Ce(NO <sub>3</sub> ) <sub>4</sub> (NH <sub>4</sub> NO <sub>3</sub> ) <sub>2</sub> .H <sub>2</sub> O	3.45092	0.53793	0.28978	I.46207	
		CeO <sub>2</sub> .....	1.04869	0.02065	0.95356	I.97935	
		Ce <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	1.73112	0.23833	0.57766	I.76167	
		Ce.....	Ce(NO <sub>3</sub> ) <sub>4</sub> .....	2.25490	0.35313	0.44348	I.64687
		Ce(NO <sub>3</sub> ) <sub>4</sub> (NH <sub>4</sub> NO <sub>3</sub> ) <sub>2</sub> .H <sub>2</sub> O	3.29062	0.51728	0.30389	I.48272	
		Ce <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	1.65074	0.21768	0.60578	I.78232	
<b>Chlorine, Cl=35.45</b>							
Ag.....		Cl.....	0.32846	I.51648	3.04467	0.48352	
		HCl.....	0.33780	I.52866	2.96033	0.47134	
AgCl.....		Cl.....	0.24725	I.39313	4.04455	0.60687	
		HCl.....	0.25427	I.40531	3.93273	0.59469	
BaCrO <sub>4</sub> .....		Cl.....	0.27968	I.44667	3.57542	0.55333	
Ca.....		Cl.....	1.76812	0.24751	0.56557	I.75240	
K.....		Cl.....	0.90550	I.95689	1.10410	0.04311	
KCl.....		Cl.....	0.47520	I.67688	2.10435	0.32312	
Li.....		Cl.....	5.04267	0.70266	0.19831	I.29734	
Mg.....		Cl.....	2.91053	0.46397	0.34358	I.53603	
MgCl <sub>2</sub> .....		Cl.....	0.74428	I.87174	1.34356	0.12826	
MnO <sub>2</sub> .....		Cl.....	0.81495	I.91113	1.22708	0.08887	

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Logarithm.	Factor.	Logarithm.
<b>Chlorine</b>						
Na.....		Cl.....	1.53797	0.18695	0.65020	1.81305
NaCl.....		Cl.....	0.60599	1.78246	1.65022	0.21754
NH <sub>4</sub> .....		Cl.....	1.96159	0.29261	0.50979	1.70739
NH <sub>4</sub> Cl.....		HCl.....	0.68118	1.83326	1.46803	0.16674
(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .....		HCl.....	0.55155	1.74159	1.81304	0.25841
PbCrO <sub>4</sub> .....		Cl.....	0.21952	1.34145	4.55574	0.65855
<b>Chromium, Cr=52.1</b>						
BaCrO <sub>4</sub> .....		Cr.....	0.20552	1.31286	4.86567	0.68714
		Cr <sub>2</sub> O <sub>3</sub> .....	0.30019	1.47740	3.33123	0.52260
		CrO <sub>2</sub> .....	0.39486	1.59645	2.53250	0.40355
		CrO <sub>4</sub> .....	0.45798	1.66085	2.18350	0.33915
		Cr <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .18H <sub>2</sub> O.....	1.41355	0.15031	0.70743	1.84969
Cr <sub>2</sub> O <sub>3</sub> .....		Cr.....	0.68463	1.83546	1.46063	0.16454
		CrO <sub>3</sub> .....	1.31536	0.11905	0.76023	1.88095
K <sub>2</sub> CrO <sub>4</sub> .....		CrO <sub>3</sub> .....	0.51491	1.71173	1.94209	0.28827
K <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> .....		CrO <sub>3</sub> .....	0.67978	1.83237	1.47107	0.16763
PbCrO <sub>4</sub> .....		Cr.....	0.16130	1.20764	6.19957	0.79236
		Cr <sub>2</sub> O <sub>3</sub> .....	0.23560	1.37218	4.24440	0.62782
		CrO <sub>3</sub> .....	0.30991	1.49123	3.22671	0.50877
		CrO <sub>4</sub> .....	0.35944	1.55563	2.78207	0.44437
		Cr <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .18H <sub>2</sub> O.....	1.10941	0.04509	0.90138	1.95491
		K <sub>2</sub> CrO <sub>4</sub> .....	0.60187	1.77950	1.66150	0.22050
		K <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> .....	0.45589	1.65886	2.19350	0.34114
<b>Cobalt, Co=59</b>						
Co.....		CoO.....	1.27119	0.10421	0.78666	1.89579
		Co(NO <sub>3</sub> ) <sub>2</sub> .6H <sub>2</sub> O.....	4.93511	0.69330	0.20263	1.30670
		CoSO <sub>4</sub> .7H <sub>2</sub> O.....	4.76567	0.67812	0.20983	1.32188
Co(NO <sub>2</sub> ) <sub>3</sub> (KNO <sub>2</sub> ) <sub>3</sub> .....		Co.....	0.13033	1.11505	7.67267	0.88495
		CoO.....	0.16568	1.21926	6.03586	0.78074
Co <sub>3</sub> O <sub>4</sub> .....		Co.....	0.73443	1.86595	1.36166	0.13405
		CoO.....	0.93360	1.97016	1.07113	0.02984
CoSO <sub>4</sub> .....		Co.....	0.38050	1.58035	2.62812	0.41965
		CoO.....	0.48368	1.68456	2.06748	0.31544
(CoSO <sub>4</sub> ) <sub>2</sub> (K <sub>2</sub> SO <sub>4</sub> ) <sub>3</sub> .....		Co.....	0.14162	1.15113	7.06100	0.84887
		CoO.....	0.18003	1.25534	5.55471	0.74466
<b>Columbium, Cb=94</b>						
Cb <sub>2</sub> O <sub>5</sub> .....		Cb.....	0.70150	1.84603	1.42552	0.15397
<b>Copper, Cu=63.6</b>						
Cu.....		CuO.....	1.25157	0.09746	0.79898	1.90254

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Logarithm.	Factor.	Logarithm.
<b>Copper</b>						
Cu .....		$\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ .....	3.92673	0.59403	0.25467	I.40597
		$\text{Cu}_2 \left\{ \text{C}_2\text{H}_3\text{O}_2 \right\} (\text{AsO}_2)_3$ .....	3.98755	0.60071	0.25078	I.39929
CuCNS .....		Cu .....	0.52260	I.71817	1.91352	0.28183
		CuO .....	0.65406	I.81562	1.52890	0.18438
CuO .....		Cu .....	0.79900	I.90255	1.25156	0.09745
		$\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ .....	3.13750	0.49658	0.31873	I.50342
Cu <sub>2</sub> S .....		Cu .....	0.79869	I.90238	1.25206	0.09762
		CuO .....	0.99962	I.99984	1.00037	0.00016
		Cu <sub>2</sub> O .....	0.89916	I.95384	1.11215	0.04616
		$\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ .....	1.56811	0.19538	0.63770	I.80462
Mg <sub>2</sub> As <sub>2</sub> O <sub>7</sub> .....		$\text{Cu} \left\{ \text{C}_2\text{H}_3\text{O}_2 \right\} (\text{AsO}_2)_3$ .....	1.08825	0.03673	0.91890	I.96327
<b>Erbium, Er=166</b>						
Er <sub>2</sub> O <sub>3</sub> .....		Er .....	0.87370	I.94136	1.11455	0.05864
<b>Fluorine, F=19</b>						
BaSiF <sub>6</sub> .....		BaF <sub>2</sub> .....	0.62665	I.79703	1.59578	0.20297
		F .....	0.40743	I.61006	2.45439	0.38994
		HF .....	0.42904	I.63250	2.33078	0.36750
		H <sub>2</sub> SiF <sub>6</sub> .....	0.51614	I.71277	1.93745	0.28723
		SiF <sub>4</sub> .....	0.37312	I.57185	2.68012	0.42815
		SiF <sub>6</sub> .....	0.50893	I.70666	1.96491	0.29334
CaF <sub>2</sub> .....		F .....	0.48655	I.68713	2.05529	0.31287
		HF .....	0.51238	I.70959	1.95168	0.29041
		H <sub>2</sub> SiF <sub>6</sub> .....	1.84913	0.26697	0.54079	I.73303
CaSO <sub>4</sub> .....		F .....	0.27908	I.44573	3.58317	0.55427
		HF .....	0.29389	I.46819	3.40262	0.53181
		F .....	0.51654	I.71310	1.93596	0.28690
K <sub>2</sub> SiF <sub>6</sub> .....		HF .....	0.54394	I.73555	1.83843	0.26445
		H <sub>2</sub> SiF <sub>6</sub> .....	0.65436	I.81582	1.52821	0.18418
		KF .....	0.52696	I.72178	1.89765	0.27822
		SiF <sub>6</sub> .....	0.64523	I.80971	1.54989	0.19029
		F .....	0.78936	I.89728	1.26683	0.10272
		2HF .....	0.27709	I.44262	3.60892	0.55738
H <sub>2</sub> SiF <sub>6</sub> .....		6HF .....	0.83123	I.91973	1.20300	0.08027
		SiF <sub>6</sub> .....	0.72290	I.85908	1.38331	0.14092
		SiF <sub>6</sub> .....	0.98602	I.99389	1.01416	0.00611
<b>Gallium, Ga=70</b>						
Ga <sub>2</sub> O <sub>3</sub> .....		Ga .....	0.74468	I.87197	1.34285	0.12803
Ga <sub>2</sub> S <sub>3</sub> .....		Ga .....	0.59277	I.77288	1.68700	0.22712

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Logarithm.	Factor.	Logarithm.
<b>Germanium, Ge=72.5</b>						
GeO <sub>2</sub> .....	Ge.....	0.69378	I. 84122	1.44139	0.15878	
K <sub>2</sub> GeF <sub>6</sub> .....	Ge.....	0.27379	I. 43742	3.65242	0.56258	
<b>Glucinum, Gl=9.1</b>						
GlO.....	Gl.....	0.36255	I. 55937	2.75825	0.44063	
	GlCl.....	3.18725	0.50342	0.31375	I. 49658	
	GlSO <sub>4</sub> .4H <sub>2</sub> O.....	7.06071	0.84885	0.14163	I. 15115	
<b>Gold, Au=197.2</b>						
Au.....	AuCl <sub>3</sub> .....	1.53930	0.18732	0.64965	I. 81268	
	HAuCl <sub>4</sub> .4H <sub>2</sub> O....	2.08957	0.32006	0.47857	I. 67994	
	KAu(CN) <sub>4</sub> .H <sub>2</sub> O...	1.81808	0.25961	0.55004	I. 74039	
<b>Hydrogen, H=1.008</b>						
H <sub>2</sub> O.....	H.....	0.11190	I. 04884	8.93640	0.95116	
<b>Indium, In=115</b>						
In <sub>2</sub> O.....	In.....	0.82735	I. 91769	1.20867	0.08231	
In <sub>2</sub> S <sub>3</sub> .....	In.....	0.70515	I. 84828	1.41813	0.15172	
<b>Iodine, I=126.97</b>						
Ag.....	HI.....	1.18578	0.07399	0.84336	I. 92601	
	I.....	1.17641	0.07056	0.85004	I. 92944	
AgI.....	HI.....	0.54481	I. 73625	1.83548	0.26375	
	I.....	0.54052	I. 73282	1.85005	0.26718	
	IO <sub>3</sub> .....	0.74488	I. 87209	1.34248	0.12791	
	IO <sub>4</sub> .....	0.81297	I. 91008	1.23003	0.08992	
	I <sub>2</sub> O <sub>5</sub> .....	0.71081	I. 85176	1.40683	0.14824	
	I <sub>2</sub> O <sub>7</sub> .....	0.77891	I. 89149	1.28382	0.10851	
Pd.....	HI.....	2.40339	0.38082	0.41608	I. 61918	
	I.....	2.38439	0.37738	0.41939	I. 62262	
PdI <sub>2</sub> .....	HI.....	0.71013	I. 85134	1.40819	0.14866	
	I.....	0.70453	I. 84790	1.41939	0.15210	
	IO <sub>3</sub> .....	0.97087	I. 98716	1.03000	0.01284	
	IO <sub>4</sub> .....	1.05963	0.02516	0.94372	I. 97484	
	I <sub>2</sub> O <sub>5</sub> .....	0.92648	I. 96684	1.07935	0.03316	
	I <sub>2</sub> O <sub>7</sub> .....	1.01526	0.00658	0.98496	I. 99342	
TI.....	HI.....	0.38655	I. 58721	2.58694	0.41279	
	I.....	0.38351	I. 58378	2.60747	0.41622	
	IO <sub>3</sub> .....	0.52851	I. 72304	1.89213	0.27695	
	IO <sub>4</sub> .....	0.57681	I. 76105	1.73364	0.23896	
	I <sub>2</sub> O <sub>5</sub> .....	0.50433	I. 70272	1.98282	0.29728	
	I <sub>2</sub> O <sub>7</sub> .....	0.55265	I. 74245	1.80946	0.25755	
<b>Iron, Fe=55.9</b>						
Ag.....	Fe <sub>7</sub> (CN) <sub>18</sub> .....	0.44269	I. 64610	2.25890	0.35390	
	(Prussian blue)					

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Logarithm.	Factor.	Logarithm.
<b>Iron</b>						
CN.....		$\text{Fe}_7(\text{CN})_{18}$ .....	1.83483	0.26360	0.54500	I.73640
$\text{CO}_2$ .....		FeO.....	1.63411	0.21328	0.61196	I.78672
		$\text{FeCO}_3$ .....	2.63406	0.42063	0.37964	I.57937
		$\text{Fe}(\text{HCO}_3)_2$ .....	2.02176	0.30573	0.49462	I.69427
Fe.....		$\text{Fe}(\text{HCO}_3)_2$ .....	3.18279	0.50281	0.31418	I.49719
		FeO.....	1.28624	0.10932	0.77747	I.89068
		$\text{Fe}_2\text{O}_3$ .....	1.42935	0.15514	0.69962	I.84486
		$\text{FeSO}_4$ .....	2.71844	0.43432	0.36786	I.56568
		$\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$ .....	4.97438	0.69674	0.20103	I.30326
		$\text{FeSO}_4 \cdot (\text{NH}_4)_2\text{SO}_4 \cdot 6\text{H}_2\text{O}$ .....	7.01733	0.84617	0.14251	I.15383
FeO.....		Fe.....	0.77747	I.89068	1.28624	0.10932
		$\text{FeCO}_3$ .....	1.61193	0.20735	0.62037	I.79265
		$\text{Fe}(\text{HCO}_3)_2$ .....	2.47450	0.39349	0.40412	I.60651
		$\text{Fe}_2\text{O}_3$ .....	1.11128	0.04582	0.89988	I.95418
$\text{Fe}_2\text{O}_3$ .....		Fe.....	0.69962	I.84486	1.42935	0.15514
		$\text{FeCl}_3$ .....	2.03067	0.30764	0.49244	I.69236
		$\text{FeCO}_3$ .....	1.45053	0.16153	0.68940	I.83847
		$\text{Fe}(\text{HCO}_3)_2$ .....	2.22674	0.34767	0.49909	I.65233
		FeO.....	0.89988	I.95418	1.11128	0.04582
		$\text{Fe}_2\text{O}_3$ .....	0.96658	I.98524	1.03457	0.01476
		$\text{FeSO}_4$ .....	1.90187	0.27918	0.52580	I.72082
		$\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$ .....	3.48018	0.54160	0.28734	I.45840
		$\text{FeSO}_4 \cdot (\text{NH}_4)_2\text{SO}_4 \cdot 6\text{H}_2\text{O}$ .....	4.90944	0.69103	0.20369	I.30897
		$\text{Fe}_2(\text{SO}_4)_3$ .....	2.50300	0.39846	0.39952	I.60154
		$\text{FePO}_4$ .....	1.88861	0.27614	0.52949	I.72386
$\text{FePO}_4$ .....		Fe.....	0.37044	I.56872	2.69950	0.43128
		FeO.....	0.47648	I.67804	2.09875	0.32196
FeS.....		Fe.....	0.63550	I.80312	1.57356	0.19688
		FeO.....	0.81742	I.91244	1.22337	0.08756
		$\text{Fe}_2\text{O}_3$ .....	0.90836	I.95826	1.10088	0.04174
$\text{Mg}_2\text{As}_2\text{O}_7$ .....		$\text{FeAsO}_4$ .....	1.25450	0.09847	0.79714	I.90153
$\text{SO}_3$ .....		FeO.....	0.89807	I.95331	1.11349	0.04669
		$\text{FeSO}_4$ .....	1.89803	0.27831	0.52685	I.72169
<b>Lanthanum,</b>						
La=138.9						
$\text{La}_2\text{O}_3$ .....		La.....	0.42633	I.62975	2.34558	0.37025
<b>Lead, Pb=206.9</b>						
Pb.....		PbO.....	1.07733	0.03235	0.92822	I.96765
		$(\text{PbCO}_3)_2\text{Pb}(\text{OH})_2$ .....	1.38890	0.14267	0.72000	I.85733

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Logarithm.	Factor.	Logarithm.
<b>Lead</b>						
PbCl <sub>2</sub> .....	Pb.....	0.74478	I.87203	1.34267	0.12797	
	PbO.....	0.80238	I.90438	1.24629	0.09562	
PbCrO <sub>4</sub> .....	Pb.....	0.64056	I.80656	1.56150	0.19354	
	Pb(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> .3H <sub>2</sub> O	1.17338	0.06944	0.85224	I.93056	
	(PbCO <sub>3</sub> ) <sub>2</sub> Pb(OH) <sub>2</sub>	0.88968	I.94923	1.12400	0.05077	
	PbO.....	0.69009	I.83891	1.44907	0.16109	
PbO.....	Pb.....	0.92822	I.96765	1.07733	0.03235	
	PbCO <sub>3</sub> .....	1.19743	0.07824	0.83514	I.92176	
	Pb(NO <sub>3</sub> ) <sub>2</sub> .....	1.48458	0.17169	0.67346	I.82831	
PbO <sub>2</sub> .....	Pb.....	0.86604	I.93754	1.15468	0.06246	
	Pb(NO <sub>3</sub> ) <sub>2</sub> .....	1.38542	0.14158	0.72180	I.85842	
PbSO <sub>4</sub> .....	Pb.....	0.68293	I.83438	1.46427	0.16562	
	Pb(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> .3H <sub>2</sub> O	1.25100	0.09726	0.79936	I.90274	
	PbCO <sub>3</sub> .....	0.88097	I.94496	1.13511	0.05504	
	(PbCO <sub>3</sub> ) <sub>2</sub> Pb(OH) <sub>2</sub>	0.94853	I.97705	1.05427	0.02295	
	Pb(NO <sub>3</sub> ) <sub>2</sub> .....	1.09249	0.03842	9.15340	0.96158	
	PbO.....	0.73574	I.86672	1.35919	0.13328	
	PbO <sub>2</sub> .....	0.78855	I.89683	1.26815	0.10317	
	Pb <sub>3</sub> O <sub>4</sub> .....	0.75335	I.87699	1.32742	0.12301	
PbS.....	Pb.....	0.86584	I.93744	1.15495	0.06256	
	PbO.....	0.93279	I.96978	1.07207	0.03022	
	PbSO <sub>4</sub> .....	1.26783	0.10306	0.78875	I.89694	
<b>Lithium, Li=7.03</b>						
CO <sub>2</sub> .....	Li <sub>2</sub> CO <sub>3</sub> .....	1.68318	0.22613	0.59412	I.77387	
	LiHCO <sub>3</sub> .....	1.54632	0.18930	0.64670	I.81070	
	Li <sub>2</sub> O.....	0.68318	I.83454	1.46373	0.16546	
LiCl.....	Li.....	0.16549	I.21877	6.04271	0.78123	
	Li <sub>2</sub> O.....	0.35381	I.54877	2.82637	0.45123	
Li <sub>2</sub> CO <sub>3</sub> .....	Li.....	0.18985	I.27840	5.26744	0.72160	
	LiCl.....	1.14718	0.05963	0.87170	I.94037	
	LiHCO <sub>3</sub> .....	1.83737	0.26240	0.54651	I.73760	
	Li <sub>2</sub> O.....	0.40589	I.60841	2.46372	0.39159	
LiHCO <sub>3</sub> .....	Li <sub>2</sub> O.....	0.22091	I.34421	4.52680	0.65579	
Li <sub>2</sub> O.....	Li.....	0.46773	I.67000	2.13795	0.33000	
	Li <sub>2</sub> SO <sub>4</sub> .....	3.66334	0.56388	0.27298	I.43612	
Li <sub>3</sub> PO <sub>4</sub> .....	Li.....	0.18167	I.25928	5.50450	0.74072	
	LiCl.....	1.09777	0.04051	0.91094	I.95949	
	Li <sub>2</sub> CO <sub>3</sub> .....	0.95693	I.98088	1.04500	0.01912	
	LiHCO <sub>3</sub> .....	1.75829	0.24507	0.56876	I.75493	
	Li <sub>2</sub> O.....	0.38841	I.58929	2.57459	0.41071	
	Li <sub>2</sub> SO <sub>4</sub> .....	1.42286	0.15316	0.70282	I.84684	

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Logarithm.	Factor.	Logarithm.
<b>Lithium</b>						
$\text{Li}_3\text{PO}_4$ .....		$\text{Li}_2\text{SO}_4 \cdot \text{H}_2\text{O}$ .....	1.65570	0.21898	0.60397	1.78102
$\text{Li}_2\text{SO}_4$ .....		Li.....	0.12768	1.10612	7.83217	0.89388
		LiCl.....	0.77152	1.88735	1.29612	0.11265
$\text{SO}_3$ .....		$\text{Li}_2\text{O}$ .....	0.37547	1.57457	2.66338	0.42543
		$\text{Li}_2\text{SO}_4$ .....	1.37547	0.13845	0.72704	1.86155
<b>Magnesium,</b> <b>Mg = 24.36</b>						
$\text{BaSO}_4$ .....		$\text{MgSO}_4$ .....	0.51581	1.71249	1.93870	0.28751
		$\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ .....	1.05602	0.02367	0.94696	1.97633
Br.....		Mg.....	0.15233	1.18277	6.56500	0.81723
		$\text{MgBr}_2$ .....	1.15233	0.06158	0.86780	1.93842
		$\text{MgBr}_2 \cdot 6\text{H}_2\text{O}$ .....	1.82830	0.26205	0.54695	1.73795
Cl.....		Mg.....	0.34358	1.53603	2.91053	0.46397
		$\text{MgCl}_2$ .....	1.34358	0.12826	0.74428	1.87174
		$\text{MgCl}_2 \cdot 6\text{H}_2\text{O}$ .....	2.86160	0.45761	0.34865	1.54239
$\text{CO}_2$ .....		$\text{MgCO}_3$ .....	1.91727	0.28268	0.52158	1.71732
		$\text{MgO}$ .....	0.91727	1.96250	1.09018	0.03750
I.....		Mg.....	0.09593	2.98195	10.4243	1.01805
		$\text{MgI}_2$ .....	1.09593	0.03978	0.91247	1.96022
Mg.....		$\text{MgCO}_3$ .....	3.46306	0.53946	0.28876	1.46054
$\text{MgCO}_3$ .....		$\text{Mg}(\text{HCO}_3)_2$ .....	1.73510	0.23933	0.57633	1.76067
$\text{MgO}$ .....		Mg.....	0.60357	1.78073	1.65681	0.21927
		$\text{MgCO}_3$ .....	2.09019	0.32019	0.47842	1.67981
		$\text{Mg}(\text{HCO}_3)_2$ .....	3.62695	0.55952	0.27573	1.44048
		$\text{MgSO}_4$ .....	2.98365	0.47475	0.33516	1.52525
$\text{Mg}_2\text{P}_2\text{O}_7$ .....		Mg.....	0.21875	1.33995	4.57140	0.66005
		$\text{MgCl}_2$ .....	0.85542	1.93218	1.16903	0.06782
		$\text{MgCl}_2 \cdot 6\text{H}_2\text{O}$ .....	1.82613	0.26153	0.54761	1.73847
		$\text{MgCl}_2 \cdot \text{KCl} \cdot 6\text{H}_2\text{O}$ .....	2.49606	0.39725	0.40064	1.60275
		$\text{MgCO}_3$ .....	0.75754	1.87941	1.32006	0.12059
		$\text{Mg}(\text{HCO}_3)_2$ .....	1.31442	0.11874	0.76078	1.88126
		$\text{MgO}$ .....	0.36243	1.55922	2.75919	0.44078
		$\text{MgSO}_4$ .....	1.08135	0.03397	0.92476	1.96603
		$\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ .....	2.21385	0.34515	0.45170	1.65485
$\text{MgSO}_4$ .....		Mg.....	0.20229	1.30598	4.94333	0.69402
		$\text{MgO}$ .....	0.33516	1.52525	2.98367	0.47475
$\text{SO}_3$ .....		$\text{MgO}$ .....	0.50411	1.70253	1.98368	0.29747
		$\text{MgSO}_4$ .....	1.50412	0.17728	0.66484	1.82272
		$\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ .....	3.07936	0.48846	0.32474	1.51154
<b>Manganese,</b> <b>Mn = 55.0</b>						
$\text{BaSO}_4$ .....		$\text{MnSO}_4$ .....	0.64706	1.81094	1.54546	0.18906

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Logarithm.	Factor.	Logarithm
<b>Manganese,</b> <b>Mn = 55.0</b>						
CO <sub>2</sub> .....	MnCO <sub>3</sub> .....	2.61364	0.41725	0.38261	I.58275	
	MnO.....	1.61364	0.20781	0.61972	I.79219	
Mn.....	MnCO <sub>3</sub> .....	2.09091	0.32034	0.47825	I.67966	
	MnO.....	1.29091	0.11090	0.77464	I.88910	
	Mn <sub>2</sub> O <sub>3</sub> .....	1.43636	0.15726	0.69622	I.84274	
Mn(HCO <sub>3</sub> ) <sub>2</sub> .....	MnCO <sub>3</sub> .....	0.64967	I.81269	1.53925	0.18731	
MnO.....	MnCO <sub>3</sub> .....	1.61972	0.20944	0.61738	I.79056	
	Mn(HCO <sub>3</sub> ) <sub>2</sub> .....	2.49317	0.39675	0.40110	I.60325	
	Mn <sub>2</sub> O <sub>3</sub> .....	1.11268	0.04637	0.89876	I.95363	
Mn <sub>3</sub> O <sub>4</sub> .....	Mn.....	0.72052	I.85765	1.38787	0.14235	
	MnCO <sub>3</sub> .....	1.50659	0.17799	0.66375	I.82201	
	Mn(HCO <sub>3</sub> ) <sub>2</sub> .....	2.31900	0.36530	0.43122	I.63470	
	MnO.....	0.93013	I.96854	1.07513	0.03146	
	Mn <sub>2</sub> O <sub>3</sub> .....	1.03493	0.01491	0.96625	I.98509	
	MnO <sub>2</sub> .....	1.13974	0.05681	0.87738	I.94319	
	MnSO <sub>4</sub> .....	1.97895	0.29644	0.50531	I.70356	
MnS.....	Mn.....	0.63175	I.80054	1.58293	0.19946	
	MnCO <sub>3</sub> .....	1.32093	0.12088	0.75704	I.87912	
	MnO.....	0.81553	I.91144	1.22620	0.08856	
	MnSO <sub>4</sub> .....	1.73513	0.23933	0.57633	I.76067	
SO <sub>3</sub> .....	MnO.....	0.88683	I.94784	1.12762	0.05216	
	MnSO <sub>4</sub> .....	1.88684	0.27573	0.52999	I.72427	
<b>Mercury,</b> <b>Hg = 200</b>						
Hg.....	HgCl <sub>2</sub> .....	1.35450	0.13178	0.73828	I.86822	
	HgO.....	1.08000	0.03342	0.92594	I.96658	
	HgS.....	1.16030	0.06457	0.86184	I.93543	
HgCl.....	Hg.....	0.84944	I.92913	1.17724	0.07087	
	HgCl <sub>2</sub> .....	1.15055	0.06091	0.86914	I.93909	
	HgNO <sub>3</sub> .....	1.11292	0.04647	0.89852	I.95353	
	Hg <sub>2</sub> O.....	0.88340	I.94616	1.13197	0.05384	
	HgS.....	0.98560	I.99370	1.01460	0.00630	
HgS.....	HgCl <sub>2</sub> .....	1.16738	0.06721	0.85662	I.93279	
	Hg(CN) <sub>2</sub> .....	1.08628	0.03594	0.92058	I.96406	
	HgNO <sub>3</sub> .....	1.12921	0.05277	0.88558	I.94723	
	Hg(NO <sub>3</sub> ) <sub>2</sub> .....	1.39652	0.14505	0.71606	I.85495	
	Hg(NO <sub>3</sub> ) <sub>2</sub> .H <sub>2</sub> O.....	1.47417	0.16855	0.67834	I.83145	
	Hg <sub>2</sub> O.....	0.89632	I.95246	1.11569	0.04754	
	HgO.....	0.93078	I.96885	1.07437	0.03115	
	HgSO <sub>4</sub> .....	1.27579	0.10578	0.78382	I.89422	



A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Logarithm.	Factor.	Logarithm.
<b>Molybdenum, Mo = 96.0</b>						
MoO <sub>3</sub> .....	Mo.....	Mo.....	0.66667	I.82391	1.50000	0.17609
	(NH <sub>4</sub> ) <sub>2</sub> MoO <sub>4</sub> .....	(NH <sub>4</sub> ) <sub>2</sub> MoO <sub>4</sub> .....	1.36213	0.13422	0.73416	I.86578
MoS <sub>3</sub> .....	Mo.....	Mo.....	0.49953	I.69856	2.00190	0.30144
	MoO <sub>3</sub> .....	MoO <sub>3</sub> .....	0.74928	I.87465	1.33459	0.12535
	(NH <sub>4</sub> ) <sub>2</sub> MoO <sub>4</sub> .....	(NH <sub>4</sub> ) <sub>2</sub> MoO <sub>4</sub> .....	1.02063	0.00887	0.97978	I.99113
(NH <sub>4</sub> ) <sub>2</sub> PO <sub>4</sub> (MoO <sub>3</sub> ) <sub>12</sub> .....	MoO <sub>3</sub> .....	MoO <sub>3</sub> .....	0.92050	I.96402	1.08638	0.03598
	(NH <sub>4</sub> ) <sub>2</sub> MoO <sub>4</sub> .....	(NH <sub>4</sub> ) <sub>2</sub> MoO <sub>4</sub> .....	1.25383	0.09824	0.79755	I.90176
PbMoO <sub>4</sub> .....	Mo.....	Mo.....	0.26165	I.41772	3.82191	0.58228
	MoO <sub>3</sub> .....	MoO <sub>3</sub> .....	0.39247	I.59381	2.54794	0.40619
	(NH <sub>4</sub> ) <sub>2</sub> MoO <sub>4</sub> .....	(NH <sub>4</sub> ) <sub>2</sub> MoO <sub>4</sub> .....	0.53460	I.72803	1.87057	0.27197
<b>Neodymium, Nd = 143.6</b>						
Nd <sub>2</sub> O <sub>3</sub> .....	Nd.....	Nd.....	0.85680	I.93288	1.1672	0.06712
<b>Nickel, Ni = 58.7</b>						
Ni.....	Ni(NO <sub>3</sub> ) <sub>2</sub> ·6H <sub>2</sub> O...	Ni(NO <sub>3</sub> ) <sub>2</sub> ·6H <sub>2</sub> O...	4.95533	0.69507	0.20180	I.30493
	NiO.....	NiO.....	1.27257	0.10468	0.78582	I.89532
	NiSO <sub>4</sub> ·7H <sub>2</sub> O.....	NiSO <sub>4</sub> ·7H <sub>2</sub> O.....	4.78489	0.67987	0.20899	I.32013
NiO.....	Ni(NO <sub>3</sub> ) <sub>2</sub> ·6H <sub>2</sub> O...	Ni(NO <sub>3</sub> ) <sub>2</sub> ·6H <sub>2</sub> O...	3.89392	0.59039	0.25681	I.40961
	NiSO <sub>4</sub> ·7H <sub>2</sub> O.....	NiSO <sub>4</sub> ·7H <sub>2</sub> O.....	3.76000	0.57519	0.26596	I.42481
NiSO <sub>4</sub> .....	Ni.....	Ni.....	0.37930	I.57898	2.63644	0.42102
	Ni(NO <sub>3</sub> ) <sub>2</sub> ·6H <sub>2</sub> O...	Ni(NO <sub>3</sub> ) <sub>2</sub> ·6H <sub>2</sub> O...	1.87952	0.27405	0.53205	I.72596
	NiO.....	NiO.....	0.48268	I.68366	2.07176	0.31634
	NiSO <sub>4</sub> ·7H <sub>2</sub> O.....	NiSO <sub>4</sub> ·7H <sub>2</sub> O.....	1.81488	0.25885	0.55100	I.74115
<b>Nitrogen, N = 14.04</b>						
AgNO <sub>3</sub> .....	HNO <sub>3</sub> .....	HNO <sub>3</sub> .....	0.30557	I.48510	3.27264	0.51490
	N <sub>2</sub> O <sub>3</sub> .....	N <sub>2</sub> O <sub>3</sub> .....	0.22380	I.34987	4.46820	0.65013
KNO <sub>3</sub> .....	N <sub>2</sub> O <sub>3</sub> .....	N <sub>2</sub> O <sub>3</sub> .....	0.53405	I.72758	1.87248	0.27242
N.....	HNO <sub>3</sub> .....	HNO <sub>3</sub> .....	4.49067	0.65231	0.22268	I.34769
	NO <sub>2</sub> .....	NO <sub>2</sub> .....	2.70940	0.43287	0.36909	I.56713
	N <sub>2</sub> O <sub>3</sub> .....	N <sub>2</sub> O <sub>3</sub> .....	2.71225	0.43333	0.36870	I.56667
	NO <sub>3</sub> .....	NO <sub>3</sub> .....	4.41878	0.64530	0.22631	I.35470
	N <sub>2</sub> O <sub>5</sub> .....	N <sub>2</sub> O <sub>5</sub> .....	3.84900	0.58535	0.25981	I.41465
NaNO <sub>3</sub> .....	N.....	N.....	0.16500	I.21749	6.06057	0.78251
	N <sub>2</sub> O <sub>3</sub> .....	N <sub>2</sub> O <sub>3</sub> .....	0.63509	I.80284	1.57457	0.19716
NH <sub>3</sub> .....	HNO <sub>3</sub> .....	HNO <sub>3</sub> .....	3.69491	0.56760	0.27064	I.43240
	N.....	N.....	0.82280	I.91529	1.21537	0.08471
	N <sub>2</sub> O <sub>3</sub> .....	N <sub>2</sub> O <sub>3</sub> .....	3.16692	0.50064	0.31577	I.49936
NH <sub>4</sub> Cl.....	HNO <sub>3</sub> .....	HNO <sub>3</sub> .....	1.17797	0.07114	0.86868	I.92886
	N.....	N.....	0.51554	I.71226	1.93973	0.28774

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Logarithm.	Factor.	Logarithm.
<b>Nitrogen</b>						
$(\text{NH}_4)_2\text{PtCl}_6$ .....		$\text{HNO}_3$ .....	0.28424	I. 45368	3.51817	0.54632
		N.....	0.06329	2.80137	15.7989	1.19863
		$\text{N}_2\text{O}_5$ .....	0.24365	I. 38672	4.10470	0.61328
$(\text{NH}_4)_2\text{SO}_4$ .....		N.....	0.20872	I. 31956	4.79111	0.68044
		$\text{N}_2\text{O}_5$ .....	0.81753	I. 91251	1.22317	0.08749
		$\text{HNO}_3$ .....	0.64732	I. 81112	1.54482	0.18888
Pt.....		N.....	0.14415	I. 15881	6.93733	0.84119
		$\text{N}_2\text{O}_5$ .....	0.55483	I. 74416	1.80236	0.25584
		$\text{HNO}_3$ .....	1.57504	0.19729	0.63492	I. 80271
$\text{SO}_3$ .....		N.....	0.35074	I. 54498	2.85113	0.45502
		$\text{N}_2\text{O}_5$ .....	1.34999	0.13033	0.74075	I. 86967
		<b>Osmium, Os=191</b>				
$\text{OsO}_4$ .....		Os.....	0.74902	I. 87449	1.33509	0.12551
<b>Palladium, Pd=106.5</b>						
$\text{K}_2\text{PdCl}_6$ .....		Pd.....	0.26793	I. 42801	3.73242	0.57199
Pd.....		$\text{PdCl}_2 \cdot 2\text{H}_2\text{O}$ .....	0.53694	I. 72992	1.86243	0.27008
		$\text{PdCl}_2 \cdot 2\text{H}_2\text{O}$ .....	2.00409	0.30191	0.49899	I. 69809
		$\text{Pd}(\text{NO}_3)_2$ .....	2.16505	0.33547	0.46188	I. 66453
$\text{PdI}_2$ .....		Pd.....	0.29547	I. 47052	3.38438	0.52948
<b>Phosphorus, P=31.0</b>						
$\text{Ag}_3\text{PO}_4$ .....		P.....	0.07402	2.86937	13.5091	1.13063
$\text{Ag}_4\text{P}_2\text{O}_7$ .....		$\text{PO}_4$ .....	0.22684	I. 35572	4.40840	0.64428
		$\text{P}_2\text{O}_5$ .....	0.16954	I. 22926	5.89850	0.77074
		P.....	0.10236	I. 01012	9.76975	0.98988
$\text{Al}_2\text{O}_3$ .....		$\text{PO}_4$ .....	0.31368	I. 49648	3.18800	0.50352
		$\text{P}_2\text{O}_5$ .....	0.23443	I. 37002	4.26560	0.62998
		$\text{P}_2\text{O}_5$ .....	1.38943	0.14284	0.71972	I. 85716
$\text{AlPO}_4$ .....		$\text{PO}_4$ .....	0.77804	I. 89100	1.28529	0.10900
		$\text{P}_2\text{O}_5$ .....	0.58149	I. 76454	1.71972	0.23546
		$\text{P}_2\text{O}_5$ .....	0.45762	I. 66051	2.18521	0.33949
$\text{Ca}_3(\text{PO}_4)_2$ .....		$\text{PO}_4$ .....	0.62955	I. 79903	1.58844	0.20097
$\text{FePO}_4$ .....		$\text{P}_2\text{O}_5$ .....	0.47051	I. 67257	2.12535	0.32743
$\text{Mg}_2\text{P}_2\text{O}_7$ .....		$\text{Na}_2\text{HPO}_4$ .....	1.27609	0.10588	0.78365	I. 89412
		$\text{Na}_2\text{HPO}_4 \cdot 12\text{H}_2\text{O}$ .....	3.21615	0.50734	0.31093	I. 49266
		$\text{NaNH}_4\text{HPO}_4 \cdot 4\text{H}_2\text{O}$ .....	1.87852	0.27382	0.53233	I. 72618
		P.....	0.27838	I. 44463	3.59225	0.55537
		$\text{PO}_4$ .....	0.85308	I. 93099	1.17222	0.06901
		$\text{P}_2\text{O}_5$ .....	0.63757	I. 80453	1.56844	0.19547

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Logarithm.	Factor.	Logarithm.
<b>Phosphorus</b>						
(NH <sub>4</sub> ) <sub>3</sub> PO <sub>4</sub>						
(MoO <sub>3</sub> ) <sub>12</sub> .....	P.....	0.01651	2.21784	60.5562	2.78216	
	PO <sub>4</sub> .....	0.05061	2.70421	19.7600	2.29579	
	P <sub>2</sub> O <sub>5</sub> .....	0.03782	2.57775	26.4394	2.42225	
P <sub>2</sub> O <sub>5</sub> .....	Na <sub>2</sub> HPO <sub>4</sub> .....	2.00148	0.30135	0.49963	1.69865	
	Na <sub>2</sub> HPO <sub>4</sub> ·12H <sub>2</sub> O.....	5.04437	0.70281	0.19824	1.29719	
	NaNH <sub>4</sub> HPO <sub>4</sub> ·4H <sub>2</sub> O.....	2.94640	0.46929	0.33940	1.53071	
	P.....	0.43662	1.64010	2.29032	0.35990	
U <sub>2</sub> P <sub>2</sub> O <sub>11</sub> .....	P.....	0.08671	2.93808	11.5324	2.06192	
	PO <sub>4</sub> .....	0.26573	1.42444	3.76325	0.57556	
	P <sub>2</sub> O <sub>5</sub> .....	0.19860	1.29798	5.03522	0.70202	
<b>Platinum,</b>						
Pt = 194.8						
K <sub>2</sub> PtCl <sub>6</sub> .....	H <sub>2</sub> PtCl <sub>6</sub> ·6H <sub>2</sub> O.....	1.06546	0.02754	0.93855	1.97246	
	Pt.....	0.40099	1.60313	2.49383	0.39687	
	PtCl <sub>4</sub> .....	0.69288	1.84066	1.44323	0.15934	
	PtCl <sub>4</sub> ·5H <sub>2</sub> O.....	0.87830	1.94364	1.13858	0.05636	
(NH <sub>4</sub> ) <sub>2</sub> PtCl <sub>6</sub> .....	Pt.....	0.43910	1.64256	2.27742	0.35744	
	PtCl <sub>4</sub> .....	0.75872	1.88008	1.31800	0.11992	
	PtCl <sub>6</sub> .....	0.93994	1.97310	1.06390	0.02690	
Pt.....	H <sub>2</sub> PtCl <sub>6</sub> ·6H <sub>2</sub> O.....	2.65712	0.42441	0.37635	1.57559	
	PtCl <sub>4</sub> .....	1.72793	0.23753	0.57873	1.76247	
	PtCl <sub>4</sub> ·5H <sub>2</sub> O.....	2.19035	0.34051	0.45655	1.65949	
<b>Potassium,</b>						
K = 39.15						
Ag.....	KBr.....	1.10359	0.04281	0.90612	1.95719	
	KCl.....	0.69119	1.83960	1.44677	0.16040	
	KClO <sub>3</sub> .....	1.13592	0.05535	0.88034	1.94465	
	KClO <sub>4</sub> .....	1.28417	0.10862	0.77871	1.89138	
	KCN.....	0.60400	1.78104	1.65562	0.21896	
	KI.....	1.53914	0.18728	0.64972	1.81272	
AgBr.....	KBr.....	0.63394	1.80205	1.57743	0.19795	
	KBrO <sub>3</sub> .....	0.88940	1.94910	1.12434	0.05090	
AgCl.....	KCl.....	0.52030	1.71625	1.92200	0.28375	
	KClO <sub>3</sub> .....	0.85507	1.93200	1.16950	0.06800	
	KClO <sub>4</sub> .....	0.96666	1.98528	1.03448	0.01472	
AgCN.....	KCN.....	0.48660	1.68717	2.05510	0.31283	
AgI.....	KI.....	0.70720	1.84954	1.41403	0.15046	
	KIO <sub>3</sub> .....	0.91155	1.95978	1.09703	0.04022	
BaCrO <sub>4</sub> .....	K <sub>2</sub> CrO <sub>4</sub> .....	0.76686	1.88472	1.30400	0.11528	
	K <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> .....	0.58087	1.76408	1.72156	0.23592	

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Logarithm.	Factor.	Logarithm.
<b>Potassium</b>						
BaSO <sub>4</sub> .....	KHSO <sub>4</sub> .....	0.58347	1.76602	1.71388	0.23398	
	K <sub>2</sub> S.....	0.47272	1.67460	2.11543	0.32540	
	K <sub>2</sub> SO <sub>4</sub> .....	0.74685	1.87323	1.33903	0.12677	
Br.....	K.....	0.48962	1.68986	2.04238	0.31014	
	KBr.....	1.48962	0.17308	0.67130	1.82692	
CaF <sub>2</sub> .....	KF.2H <sub>2</sub> O.....	2.41183	0.38235	0.41462	1.61765	
CaSO <sub>4</sub> .....	KF.2H <sub>2</sub> O.....	1.38341	0.14095	0.72285	1.85905	
Cl.....	K.....	1.10437	0.04312	0.90548	1.95688	
	KCl.....	2.10437	0.32312	0.47520	1.67688	
	KClO <sub>3</sub> .....	3.45838	0.53887	0.28915	1.46113	
	KClO <sub>4</sub> .....	3.90973	0.59215	0.25577	1.40785	
	K <sub>2</sub> O.....	1.33004	0.12387	0.75185	1.87613	
CO <sub>2</sub> .....	K <sub>2</sub> O.....	2.14318	0.33106	0.46660	1.66894	
	K <sub>2</sub> CO <sub>3</sub> .....	3.14318	0.49737	0.31815	1.50263	
I.....	KI.....	1.30833	0.11672	0.76433	1.88328	
	KIO <sub>3</sub> .....	1.68638	0.22696	0.59298	1.77304	
K.....	K <sub>2</sub> O.....	1.20434	0.08075	0.83032	1.91925	
	KNO <sub>3</sub> .....	2.58471	0.41241	0.38689	1.58759	
KBr.....	K.....	0.32869	1.51678	3.04243	0.48322	
	K <sub>2</sub> O.....	0.39585	1.59753	2.52622	0.40247	
KCl.....	K.....	0.52480	1.71999	1.90552	0.28001	
	K <sub>2</sub> CO <sub>3</sub> .....	0.92694	1.96705	1.07883	0.03295	
	K <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> .....	1.97386	0.29532	0.50661	1.70468	
	KHCO <sub>3</sub> .....	1.34258	0.12794	0.74481	1.87206	
	KNO <sub>3</sub> .....	1.35644	0.13240	0.73722	1.86760	
	K <sub>2</sub> O.....	0.63204	1.80074	1.58219	0.19926	
KCl.....	K <sub>2</sub> SO <sub>4</sub> .....	1.16863	0.06768	0.85628	1.93262	
KI.....	K.....	0.23567	1.37231	4.24318	0.62769	
	K <sub>2</sub> O.....	0.28383	1.45306	3.52323	0.54694	
KOH.....	K <sub>2</sub> CO <sub>3</sub> .....	1.23140	0.09040	0.81207	1.90960	
	K <sub>2</sub> O.....	0.83964	1.92409	1.19100	0.07591	
K <sub>2</sub> O.....	K.....	0.83033	1.91925	1.20433	0.08075	
	K <sub>2</sub> CO <sub>3</sub> .....	1.46660	0.16631	0.68185	1.83369	
	K <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> .....	3.12307	0.49458	0.32020	1.50542	
	KHCO <sub>3</sub> .....	1.06210	0.02616	0.94153	1.97384	
	KNO <sub>3</sub> .....	2.14613	0.33166	0.46595	1.66834	
	K <sub>2</sub> SO <sub>4</sub> .....	1.84899	0.26694	0.54083	1.73306	
K <sub>2</sub> PtCl <sub>6</sub> .....	K.....	0.16118	1.20730	6.20443	0.79270	
	K <sub>2</sub> CO <sub>3</sub> .....	0.28469	1.45437	3.51262	0.54563	
	KCl.....	0.30712	1.48731	3.25607	0.51269	

A	Weighed or Found.	Required.	A		B		
B	Required.	Weighed or Found.	Factor.	Logarithm.	Factor.	Logarithm.	
Potassium							
K <sub>2</sub> PtCl <sub>6</sub> .....		KHCO <sub>3</sub> .....	0.20616	I.31421	4.85056	0.68579	
		KNO <sub>3</sub> .....	0.41660	I.61971	2.40044	0.38029	
		K <sub>2</sub> O.....	0.19411	I.28805	5.15167	0.71195	
		K <sub>2</sub> SO <sub>4</sub> .....	0.35891	I.55499	2.78619	0.44501	
		K <sub>2</sub> SO <sub>4</sub> .Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> . 24H <sub>2</sub> O.....	1.95373	0.29086	0.51184	I.70914	
		K <sub>2</sub> SO <sub>4</sub> .Cr <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> . 24H <sub>2</sub> O.....	2.05667	0.31316	0.48623	I.68684	
		K.....	0.44907	I.65232	2.22679	0.34768	
		K <sub>2</sub> CO <sub>3</sub> .....	0.79319	I.89938	1.26071	0.10062	
		KCl.....	0.85570	I.93232	1.16865	0.06768	
		KHCO <sub>3</sub> .....	1.14884	0.06026	0.87043	I.93974	
K <sub>2</sub> SO <sub>4</sub> .....		KHSO <sub>4</sub> .....	1.56250	0.19382	0.64000	I.80618	
		KNO <sub>2</sub> .....	0.97717	I.98997	I.02336	0.01003	
		KNO <sub>3</sub> .....	1.16070	0.06472	0.86154	I.93528	
		K <sub>2</sub> O.....	0.54084	I.73307	1.84904	0.26693	
		K <sub>2</sub> S.....	0.63294	I.80137	1.57989	0.19863	
		K AsO <sub>4</sub> .....	1.65068	0.21766	0.60582	I.78234	
		K <sub>2</sub> HasO <sub>4</sub> .....	1.40513	0.14772	0.71166	I.85228	
		K <sub>2</sub> MnO <sub>4</sub> .....	2.58472	0.41241	0.38689	I.58759	
		KMnO <sub>4</sub> .....	2.07276	0.31655	0.48244	I.68345	
		K <sub>2</sub> MnO <sub>4</sub> .....	2.26625	0.35531	0.44126	I.64469	
Mg <sub>2</sub> As <sub>2</sub> O.....		KMnO <sub>4</sub> .....	1.81657	0.25925	0.55049	I.74075	
		N.....	7.20727	0.85777	0.13875	I.14223	
		KNO <sub>3</sub> .....	5.93013	0.77306	0.16863	I.22694	
		NH <sub>3</sub> .....	3.36851	0.52744	0.29687	I.47256	
		NO.....	2.23949	0.35015	0.44653	I.64985	
		N <sub>2</sub> O <sub>3</sub> .....	0.87250	I.94077	1.14613	0.05923	
		N <sub>2</sub> O <sub>5</sub> .....	1.87250	0.27242	0.53405	I.72758	
		Pt.....	0.40195	I.60417	2.48788	0.39583	
		KCl.....	0.76591	I.88418	1.30564	0.11582	
		SiO <sub>2</sub> .....	2.56126	0.40845	0.39044	I.59155	
Mn <sub>3</sub> O <sub>3</sub> .....		K <sub>2</sub> SiO <sub>3</sub> .....	2.17787	0.33803	0.45917	I.66197	
		K <sub>2</sub> SO <sub>4</sub> .....					
		Praseodymium,					
		Pr=140.5					
		Pr.....	0.85410	I.93151	1.1708	0.06849	
		Rhodium,					
		Rh=103					
		Rh.....	Na <sub>3</sub> RhCl <sub>6</sub> .....	3.73641	0.57245	0.26764	I.42755
			RhCl <sub>3</sub> .....	2.03252	0.30804	0.49199	I.69196

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Logarithm.	Factor.	Logarithm.
<b>Rubidium, Rb=85.5</b>						
AgCl.....	Rb.....	0.59633	I.77548	1.67696	0.22452	
	RbCl.....	0.84356	I.92612	1.18544	0.07388	
Cl.....	Rb.....	2.41183	0.38235	0.41462	I.61765	
	RbCl.....	3.41185	0.53299	0.29309	I.46701	
Rb.....	RbCl.....	1.41461	0.15064	0.70690	I.84936	
	Rb <sub>2</sub> CO <sub>3</sub> .....	1.35085	0.13061	0.74027	I.86939	
	Rb <sub>2</sub> O.....	1.09355	0.03884	0.91444	I.96116	
	Rb <sub>2</sub> SO <sub>4</sub> .....	1.56175	0.19361	0.64031	I.80639	
RbCl.....	Rb <sub>2</sub> CO <sub>3</sub> .....	0.95492	I.97997	1.04720	0.02003	
	Rb <sub>2</sub> SO <sub>4</sub> .....	1.10400	0.04297	0.90580	I.95703	
Rb <sub>2</sub> CO <sub>3</sub> .....	RbHCO <sub>3</sub> .....	1.26847	0.10328	0.78835	I.89672	
Rb <sub>2</sub> O.....	RbCl.....	0.64680	I.81077	1.54607	0.18923	
	Rb <sub>2</sub> SO <sub>4</sub> .....	1.42813	0.15477	0.70022	I.84523	
Rb <sub>2</sub> PtCl <sub>6</sub> .....	Rb.....	0.29560	I.47070	3.38300	0.52930	
	RbCl.....	0.41816	I.62134	2.39144	0.37866	
	Rb <sub>2</sub> CO.....	0.39931	I.60131	2.50433	0.39869	
	RbHCO <sub>3</sub> .....	0.50652	I.70460	1.97423	0.29540	
	Rb <sub>2</sub> O.....	0.32325	I.50954	3.09357	0.49046	
Rb <sub>2</sub> SO <sub>4</sub> .....	Rb <sub>2</sub> CO <sub>3</sub> .....	0.86496	I.93700	1.15611	0.06300	
	RbHCO <sub>3</sub> .....	1.09721	0.04029	0.91140	I.95971	
<b>Selenium, Se=79.2</b>						
Se.....	H <sub>2</sub> SeO <sub>3</sub> .....	1.63148	0.21258	0.61294	I.78742	
	H <sub>2</sub> SeO <sub>4</sub> .....	1.83354	0.26329	0.54539	I.73671	
	SeO <sub>2</sub> .....	1.40400	0.14737	0.71225	I.85263	
	SeO <sub>3</sub> .....	1.60604	0.20576	0.15640	I.19424	
<b>Silicon, Si=28.4</b>						
BaSiF <sub>6</sub> .....	SiF <sub>4</sub> .....	0.37312	I.57185	2.68012	0.42815	
	SiO <sub>2</sub> .....	0.21587	I.33419	4.63244	0.66581	
K <sub>2</sub> SiF <sub>6</sub> .....	SiF <sub>4</sub> .....	0.47304	I.67490	2.11400	0.32510	
	SiO <sub>2</sub> .....	0.27368	I.43723	3.65400	0.56277	
SiO <sub>2</sub> .....	H <sub>2</sub> SiO <sub>3</sub> .....	1.29829	0.11337	0.77025	I.88663	
	Si.....	0.47020	I.67228	2.12676	0.32772	
	SiF <sub>4</sub> .....	1.72848	0.23766	0.57855	I.76234	
	SiO <sub>3</sub> .....	1.26488	0.10205	0.79058	I.89795	
	SiO <sub>4</sub> .....	1.52979	0.18463	0.65368	I.81537	
	Si <sub>2</sub> O <sub>7</sub> .....	1.39732	0.14530	0.71565	I.85470	
	Si(OH) <sub>4</sub> .....	1.59656	0.20318	0.62636	I.79682	
<b>Silver, Ag=107.93</b>						
Ag.....	AgNO <sub>3</sub> .....	1.57482	0.19723	0.63500	I.80277	
	Ag <sub>2</sub> O.....	1.07412	0.03105	0.93100	I.96895	

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Logarithm.	Factor.	Logarithm.
<b>Silver</b>						
AgBr		Ag	0.57443	I.75924	1.74060	0.24076
AgCl		Ag	0.75276	I.87665	1.32847	0.12335
		AgNO <sub>3</sub>	1.18545	0.07388	0.84356	I.92612
		Ag <sub>2</sub> O	0.80855	I.90771	1.23677	0.09229
AgCN		Ag	0.80563	I.90613	1.24129	0.09387
AgI		Ag	0.45947	I.66226	2.17640	0.33774
Ag <sub>3</sub> PO <sub>4</sub>		Ag	0.77316	I.88827	1.29339	0.11173
Ag <sub>3</sub> P <sub>2</sub> O <sub>7</sub>		Ag	0.71274	I.85293	1.40303	0.14707
Br		Ag	1.34980	0.13027	0.74085	I.86973
		AgBr	2.34980	0.37103	0.42557	I.62897
Cl		Ag	3.04453	0.48352	0.32846	I.51648
		AgCl	4.04455	0.60687	0.24725	I.39313
I		Ag	0.85003	I.92944	1.17641	0.07056
		AgI	1.85005	0.26718	0.54053	I.73282
<b>Sodium, Na=23.05</b>						
Ag		NaBr	0.95442	I.97974	1.04776	0.02026
		NaCl	0.54202	I.73401	1.84496	0.26599
		NaI	1.39000	0.14301	0.71943	I.85699
AgBr		NaBr	0.54825	I.73898	1.82400	0.26102
AgCl		NaCl	0.40801	I.61067	2.45094	0.38933
AgI		NaI	0.63865	I.80527	1.56579	0.19473
BaSO <sub>4</sub>		NaHSO <sub>4</sub>	0.51450	I.71139	1.94361	0.28861
		NaHSO <sub>4</sub> ·H <sub>2</sub> O	0.59169	I.77209	1.69008	0.22791
		Na <sub>2</sub> S	0.33479	I.52477	2.98693	0.47523
		Na <sub>2</sub> SO <sub>3</sub>	0.54040	I.73271	1.85050	0.26729
		Na <sub>2</sub> SO <sub>3</sub> ·7H <sub>2</sub> O	1.08059	0.03366	0.92542	I.96634
		Na <sub>2</sub> SO <sub>4</sub>	0.60893	I.78457	1.64222	0.21543
		Na <sub>2</sub> SO <sub>4</sub> ·10H <sub>2</sub> O	1.38065	0.14008	0.72430	I.85992
B <sub>2</sub> O <sub>3</sub>		Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub>	1.44357	0.15944	0.69271	I.84056
		Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> ·10H <sub>2</sub> O	2.73044	0.43623	0.36624	I.56377
Br		Na	0.28827	I.45980	3.46900	0.54020
		NaBr	1.28827	0.11001	0.77623	I.88999
		Na <sub>2</sub> O	0.38832	I.58919	2.57518	0.41081
CaCO <sub>3</sub>		Na <sub>2</sub> CO <sub>3</sub>	1.05995	0.02529	0.94343	I.97471
CaF <sub>2</sub>		NaF	1.07683	0.03215	0.92863	I.96785
CaO		Na <sub>2</sub> CO <sub>3</sub>	1.89130	0.27676	0.52874	I.72324
CaSO <sub>4</sub>		Na <sub>2</sub> CO <sub>3</sub>	0.77924	I.89167	1.28329	0.10833
Cl		Na	0.65021	I.81306	1.53793	0.18694
		NaCl	1.65021	0.21754	0.60598	I.78246
		Na <sub>2</sub> O	0.87588	I.94244	1.14171	0.05756
CO <sub>2</sub>		Na <sub>2</sub> CO <sub>3</sub>	2.41139	0.38227	0.41470	I.61773

A	Weighed or Found.	Required.	A		B	
	Required.	Weighed or Found.	Factor.	Logarithm.	Factor.	Logarithm.
<b>Sodium</b>						
CO <sub>2</sub> .....	Na <sub>2</sub> O .....	Na <sub>2</sub> O .....	1.41137	0.14964	0.70853	I.85036
H <sub>3</sub> BO <sub>3</sub> .....	Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> .....	Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> .....	0.81462	I.91095	1.22758	0.08905
I. ....	Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> .10H <sub>2</sub> O .....	Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> .10H <sub>2</sub> O .....	1.54079	0.18774	0.64903	I.81226
	Na .....	Na .....	0.18154	I.25897	5.50850	0.74103
	NaI .....	NaI .....	1.18154	0.07245	0.84635	I.92755
	Na <sub>2</sub> O .....	Na <sub>2</sub> O .....	0.24455	I.38836	4.08920	0.61164
KBF <sub>4</sub> .....	Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> .....	Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> .....	0.40052	I.60262	2.49678	0.39738
	Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> .10H <sub>2</sub> O .....	Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> .10H <sub>2</sub> O .....	0.75755	I.87941	1.32006	0.12059
Mg <sub>2</sub> As <sub>2</sub> O <sub>7</sub> .....	Na <sub>2</sub> HAsO <sub>3</sub> .....	Na <sub>2</sub> HAsO <sub>3</sub> .....	1.09492	0.03938	0.91332	I.96062
	Na <sub>2</sub> HAsO <sub>4</sub> .....	Na <sub>2</sub> HAsO <sub>4</sub> .....	1.19792	0.07843	0.83478	I.92157
Mg <sub>2</sub> P <sub>2</sub> O <sub>7</sub> .....	Na <sub>2</sub> HPO <sub>4</sub> .....	Na <sub>2</sub> HPO <sub>4</sub> .....	1.27608	0.10588	0.78365	I.89412
	Na <sub>2</sub> HPO <sub>4</sub> .12H <sub>2</sub> O .....	Na <sub>2</sub> HPO <sub>4</sub> .12H <sub>2</sub> O .....	3.21750	0.50752	0.31080	I.49248
	Na <sub>4</sub> P <sub>2</sub> O <sub>7</sub> .10H <sub>2</sub> O .....	Na <sub>4</sub> P <sub>2</sub> O <sub>7</sub> .10H <sub>2</sub> O .....	2.00410	0.30192	0.49898	I.69808
	NH <sub>4</sub> NaHPO <sub>4</sub> .4H <sub>2</sub> O .....	NH <sub>4</sub> NaHPO <sub>4</sub> .4H <sub>2</sub> O .....	1.87852	0.27382	0.53232	I.72618
Na Br .....	Na .....	Na .....	0.22377	I.34979	4.46900	0.65021
	Na <sub>2</sub> O .....	Na <sub>2</sub> O .....	0.30143	I.47918	3.31753	0.52082
NaCl .....	Na .....	Na .....	0.39402	I.59552	2.53795	0.40448
	Na <sub>2</sub> CO <sub>3</sub> .....	Na <sub>2</sub> CO <sub>3</sub> .....	0.90684	I.95753	1.10273	0.04247
	NaHCO <sub>3</sub> .....	NaHCO <sub>3</sub> .....	1.43687	0.15742	0.69595	I.84258
	Na <sub>2</sub> HPO <sub>4</sub> .....	Na <sub>2</sub> HPO <sub>4</sub> .....	1.21456	0.08442	0.82333	I.91558
	Na <sub>2</sub> O .....	Na <sub>2</sub> O .....	0.53077	I.72491	1.88404	0.27509
	Na <sub>2</sub> SO <sub>4</sub> .....	Na <sub>2</sub> SO <sub>4</sub> .....	1.21504	0.08459	0.82302	I.91541
Na <sub>2</sub> CO <sub>3</sub> .....	Na .....	Na .....	0.43450	I.63799	2.30147	0.36201
	NaHCO <sub>3</sub> .....	NaHCO <sub>3</sub> .....	1.58448	0.19989	0.63112	I.80011
	Na <sub>2</sub> O .....	Na <sub>2</sub> O .....	0.58530	I.76738	1.70852	0.23262
	NaOH .....	NaOH .....	0.75510	I.87800	1.32433	0.12200
NaHCO <sub>3</sub> .....	Na .....	Na .....	0.27421	I.43809	3.64675	0.56191
	Na <sub>2</sub> O .....	Na <sub>2</sub> O .....	0.36938	I.56748	2.70719	0.43252
NaI .....	Na .....	Na .....	0.15365	I.18652	6.50850	0.81348
	Na <sub>2</sub> O .....	Na <sub>2</sub> O .....	0.20697	I.31591	4.83155	0.68409
NaNO <sub>3</sub> .....	Na <sub>2</sub> O .....	Na <sub>2</sub> O .....	0.36491	I.56218	2.74044	0.43782
Na <sub>2</sub> O .....	Na .....	Na .....	0.74235	I.87061	1.34706	0.12939
	Na <sub>2</sub> HPO <sub>4</sub> .....	Na <sub>2</sub> HPO <sub>4</sub> .....	4.57667	0.66055	0.21850	I.33945
Na <sub>4</sub> P <sub>2</sub> O <sub>7</sub> .....	Na <sub>2</sub> HPO <sub>4</sub> .....	Na <sub>2</sub> HPO <sub>4</sub> .....	1.06766	0.02843	0.93664	I.97157
	Na <sub>2</sub> HPO <sub>4</sub> .12H <sub>2</sub> O .....	Na <sub>2</sub> HPO <sub>4</sub> .12H <sub>2</sub> O .....	2.69194	0.43007	0.37147	I.56993
Na <sub>2</sub> SO <sub>4</sub> .....	Na .....	Na .....	0.32428	I.51092	3.08379	0.48908
	Na <sub>2</sub> CO <sub>3</sub> .....	Na <sub>2</sub> CO <sub>3</sub> .....	0.74634	I.87294	1.33987	0.12706
	Na <sub>2</sub> CO <sub>3</sub> .10H <sub>2</sub> O .....	Na <sub>2</sub> CO <sub>3</sub> .10H <sub>2</sub> O .....	2.01364	0.30398	0.49661	I.69602
	Na <sub>2</sub> O .....	Na <sub>2</sub> O .....	0.43683	I.64031	2.28921	0.35969
N .....	NaNO <sub>3</sub> .....	NaNO <sub>3</sub> .....	6.0654	0.78251	0.16500	I.21749
NH <sub>3</sub> .....	NaNO <sub>3</sub> .....	NaNO <sub>3</sub> .....	4.98656	0.69780	0.20054	I.30220



A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Logarithm.	Factor.	Logarithm.
<b>Sodium</b>						
NH <sub>3</sub> .....	NaNH <sub>4</sub> HPO <sub>4</sub> ·4H <sub>2</sub> O.....		0.12259	I.08847	0.08157	Z.91153
NO.....	NaNO <sub>3</sub> .....		2.83256	0.45218	0.35304	I.54782
N <sub>2</sub> O <sub>5</sub> .....	NaNO <sub>3</sub> .....		1.57458	0.19716	0.63510	I.80284
	Na <sub>2</sub> O.....		0.57457	I.75935	1.74040	0.24065
P <sub>2</sub> O <sub>5</sub> .....	Na <sub>2</sub> HPO <sub>4</sub> .....		2.00148	0.30135	0.49963	I.69865
	Na <sub>2</sub> HPO <sub>4</sub> ·12H <sub>2</sub> O.....		5.04650	0.70299	0.19816	I.29701
	NaNH <sub>4</sub> HPO <sub>4</sub> ·4H <sub>2</sub> O.....		2.94640	0.46929	0.33940	I.53071
SO <sub>2</sub> .....	NaHSO <sub>3</sub> .....		1.62530	0.21093	0.61527	I.78907
	Na <sub>2</sub> SO <sub>3</sub> .....		1.96940	0.29434	0.50776	I.70566
	Na <sub>2</sub> SO <sub>3</sub> ·7H <sub>2</sub> O.....		3.93800	0.59528	0.25393	I.40472
SO <sub>3</sub> .....	Na <sub>2</sub> O.....		0.77567	I.88968	1.25985	0.11032
	Na <sub>2</sub> SO <sub>4</sub> .....		1.77567	0.24936	0.56317	I.75064
<b>Strontium, Sr = 87.6</b>						
CO <sub>2</sub> .....	SrCO <sub>3</sub> .....		3.35455	0.52563	0.29810	I.47437
SO <sub>3</sub> .....	SrO.....		1.29403	0.11194	0.77278	I.88806
	SrSO <sub>4</sub> .....		2.29400	0.36059	0.43592	I.63941
SrCO <sub>3</sub> .....	Sr.....		0.59348	I.77341	1.68496	0.22659
	SrCl <sub>2</sub> .....		1.07385	0.03094	0.93124	I.96906
	Sr(HCO <sub>3</sub> ) <sub>2</sub> .....		1.42013	0.15233	0.70416	I.84767
	Sr(NO <sub>3</sub> ) <sub>2</sub> .....		1.43415	0.15659	0.69728	I.84341
	SrO.....		0.70190	I.84627	1.42473	0.15373
SrO.....	Sr.....		0.84556	I.92714	1.18267	0.07286
	SrCl <sub>2</sub> .....		1.52992	0.18467	0.65363	I.81533
	Sr(HCO <sub>3</sub> ) <sub>2</sub> .....		2.02329	0.30606	0.49424	I.69394
SrSO <sub>4</sub> .....	Sr.....		0.47697	I.67849	2.09657	0.32151
	SrCl <sub>2</sub> .....		0.86301	I.93601	1.15876	0.06399
	SrCO <sub>3</sub> .....		0.80366	I.90507	1.24431	0.09493
	Sr(NO <sub>3</sub> ) <sub>2</sub> .....		1.15256	0.06167	0.86762	I.93833
	SrO.....		0.56409	I.75135	1.77276	0.24865
<b>Sulphur, S = 32.06</b>						
As <sub>2</sub> S <sub>3</sub> .....	H <sub>2</sub> S.....		0.13842	I.14120	7.22433	0.85880
	S.....		0.39069	I.59183	2.55959	0.40817
BaSO <sub>4</sub> .....	H <sub>2</sub> S.....		0.14596	I.16424	6.85114	0.83576
	H <sub>2</sub> SO <sub>3</sub> .....		0.35157	I.54601	2.84440	0.45399
	H <sub>2</sub> SO <sub>4</sub> .....		0.42010	I.62335	2.38039	0.37665
	S.....		0.13733	I.13775	7.28200	0.86225
	SO <sub>2</sub> .....		0.27439	I.43837	3.64442	0.56163
	SO <sub>3</sub> .....		0.34293	I.53520	2.91607	0.46480
	SO <sub>4</sub> .....		0.41146	I.61433	2.43035	0.38567

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Logarithm.	Factor.	Logarithm.
<b>Sulphur</b>						
CdS.....		H <sub>2</sub> S.....	0.23588	I.37270	4.23936	0.62730
		S.....	0.22193	I.34621	4.50600	0.65379
(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .....		SO <sub>3</sub> .....	0.60559	I.78218	1.65127	0.21782
		H <sub>2</sub> SO <sub>4</sub> .....	0.74185	I.87032	1.34797	0.12968
SO <sub>3</sub> .....		H <sub>2</sub> S.....	0.42563	I.62903	2.34947	0.37097
		H <sub>2</sub> SO <sub>4</sub> .....	1.22500	0.08814	0.81632	I.91186
<b>Tantalum, Ta=183</b>						
Ta.....		Ta <sub>2</sub> O <sub>5</sub> .....	1.2185	0.08585	0.82063	I.91415
		TaCl <sub>5</sub> .....	1.96855	0.29415	0.50799	I.70585
Ta <sub>2</sub> O <sub>5</sub> .....		TaCl <sub>5</sub> .....	1.61548	0.20830	0.61902	I.79170
		Ta <sub>2</sub> O <sub>4</sub> .....	0.96414	I.98414	1.03719	0.01586
<b>Tellurium, Te=127.6</b>						
Te.....		H <sub>2</sub> TeO <sub>4</sub> .....	1.51736	0.18109	0.65903	I.81891
		H <sub>2</sub> TeO <sub>4</sub> .2H <sub>2</sub> O....	1.79979	0.25522	0.55562	I.74478
		TeO <sub>2</sub> .....	1.25077	0.09718	0.79920	I.90282
		TeO <sub>3</sub> .....	1.37616	0.13867	0.72665	I.86133
(TeO <sub>2</sub> ) <sub>2</sub> SO <sub>3</sub> .....		Te.....	0.31958	I.50459	3.12900	0.49541
<b>Thallium, Tl=204.1</b>						
Tl.....		TlCl.....	1.17370	0.06956	0.85200	I.93044
		Tl <sub>2</sub> CO <sub>3</sub> .....	1.14700	0.05956	0.87184	I.94044
		TlI.....	1.62211	0.21008	0.61648	I.78992
		TlNO <sub>3</sub> .....	1.30382	0.11522	0.76697	I.88478
		Tl <sub>2</sub> O.....	1.03920	0.01670	0.96227	I.98330
Tl <sub>2</sub> CrO <sub>4</sub> .....		Tl.....	0.77855	I.89129	1.28442	0.10871
TlHSO <sub>4</sub> .....		Tl.....	0.67768	I.83103	1.47500	0.16897
TlI.....		Tl.....	0.61648	I.78992	1.62211	0.21008
Tl <sub>2</sub> PtCl <sub>6</sub> .....		Tl.....	0.50043	I.69934	1.99829	0.30066
		TlCl.....	0.58736	I.76890	1.70256	0.23110
		Tl <sub>2</sub> CO <sub>3</sub> .....	0.57399	I.75890	1.74220	0.24110
		TlI.....	0.81173	I.90942	1.23191	0.09058
		TlNO <sub>3</sub> .....	0.65254	I.81461	1.53246	0.18539
		Tl <sub>2</sub> O.....	0.52004	I.71604	1.92291	0.28396
		Tl <sub>2</sub> SO <sub>4</sub> .....	0.61819	I.79112	1.61763	0.20888
Tl <sub>2</sub> SO <sub>4</sub> .....		Tl.....	0.80950	I.90822	1.23531	0.09178
<b>Thorium, Th=232.5</b>						
ThO <sub>2</sub> .....		Th.....	0.87900	I.94399	1.13766	0.05601
		ThCl <sub>4</sub> .....	1.41510	0.15079	0.70666	I.84921
		Th(NO <sub>3</sub> ) <sub>4</sub> .6H <sub>2</sub> O..	2.22585	0.34750	0.44926	I.65250

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Logarithm.	Factor.	Logarithm.
<b>Tin, Sn=119.0</b>						
Sn.....		SnCl <sub>2</sub> .....	1.59578	0.20297	0.62665	I.79703
		SnCl <sub>2</sub> .2H <sub>2</sub> O.....	1.89859	0.27843	0.52671	I.72157
		SnCl <sub>4</sub> .....	2.19160	0.34076	0.45629	I.65924
		SnCl <sub>4</sub> .(NH <sub>4</sub> Cl) <sub>2</sub> .....	3.09107	0.49011	0.32352	I.50989
		SnO.....	1.13444	0.05478	0.88150	I.94522
		SnO <sub>2</sub> .....	1.26891	0.10343	0.78807	I.89657
SnO <sub>2</sub> .....		Sn.....	0.78808	I.89657	1.26891	0.10343
		SnCl <sub>2</sub> .....	1.25759	0.09954	0.79516	I.90046
		SnCl <sub>2</sub> .2H <sub>2</sub> O.....	1.49624	0.17500	0.66834	I.82500
		SnCl <sub>4</sub> .....	1.72716	0.23733	0.57899	I.76267
		SnCl <sub>4</sub> .(NH <sub>4</sub> Cl) <sub>2</sub> .....	2.43600	0.38668	0.41051	I.61332
		SnO.....	0.89402	I.95135	1.11854	0.04865
<b>Titanium, Ti=48.1</b>						
TiO <sub>2</sub> .....		Ti.....	0.60050	I.77851	1.66531	0.22149
<b>Tungsten, W=184</b>						
WO <sub>2</sub> .....		W.....	0.85185	I.93036	1.17392	0.06964
WO <sub>3</sub> .....		W.....	0.79310	I.89933	1.26086	0.10067
<b>Uranium, U=238.5</b>						
UO <sub>2</sub> .....		U.....	0.88170	I.94532	1.13418	0.05468
U <sub>2</sub> O <sub>5</sub> .....		U.....	0.84824	I.92852	1.17892	0.07148
		UO <sub>2</sub> .....	0.96205	I.98320	1.03944	0.01680
		UO <sub>2</sub> (NO <sub>3</sub> ) <sub>2</sub> .6H <sub>2</sub> O.....	1.78780	0.25232	0.55935	I.74768
U <sub>2</sub> P <sub>2</sub> O <sub>11</sub> .....		U.....	0.65194	I.82421	1.49897	0.17579
		UO <sub>2</sub> .....	0.75663	I.87889	1.32164	0.12111
<b>Vanadium, V=51.2</b>						
V <sub>2</sub> O <sub>5</sub> .....		V.....	0.56140	I.74928	1.78124	0.25072
		VO <sub>4</sub> .....	1.26317	0.10146	0.79166	I.89854
<b>Ytterbium, Yb=173</b>						
Yb <sub>2</sub> O <sub>3</sub> .....		Yb.....	0.87817	I.94358	1.13874	0.05642
<b>Yttrium, Y=89</b>						
Y <sub>2</sub> O <sub>3</sub> .....		Y.....	0.78761	I.89631	1.26974	0.10369
<b>Zinc, Zn=65.4</b>						
BaSO <sub>4</sub> .....		ZnSO <sub>4</sub> .7H <sub>2</sub> O.....	1.23180	0.09054	0.81182	I.90946
Zn.....		ZnO.....	1.24465	0.09505	0.80343	I.90495
ZnO.....		ZnCO <sub>3</sub> .....	1.54054	0.18767	0.64913	I.81233
		ZnCl <sub>2</sub> .....	1.67445	0.22387	0.59722	I.77613
		ZnSO <sub>4</sub> .7H <sub>2</sub> O.....	3.53292	0.54813	0.28305	I.45187
Zn <sub>2</sub> P <sub>2</sub> O <sub>7</sub> .....		Zn.....	0.21457	I.33157	4.66044	0.66843
		ZnO.....	0.26706	I.42661	3.74445	0.57339

A	Weighed or Found.	Required.	A		B	
B	Required.	Weighed or Found.	Factor.	Logarithm.	Factor.	Logarithm.
<b>Zinc</b>						
ZnS.....	Zn.....		0.67104	1.82675	1.49021	0.17325
	ZnO.....		0.83521	1.92180	1.19731	0.07820
	ZnSO <sub>4</sub> .7H <sub>2</sub> O.....		2.95067	0.46962	0.33891	1.53008
<b>Zirconium,</b> Zr=90.6						
ZrO <sub>2</sub> .....	Zr.....		0.73899	1.86864	1.35319	0.13136

\* The factors and logarithms in this column are used when the substances given in the first column are weighed or found, while those in the second column are required.

† The factors and logarithms in this column are used when the substances given in the second column are weighed or found, and those in the first column are required.

# VI.—FACTORS FOR THE CALCULATION OF INDIRECT GRAVIMETRIC ANALYSES

CALCULATED BY ALBERT F. SEEKER

Found.		Sought.	Factors and Their Logarithms.	
a.	b.			
AgBr + AgCl	Ag	Br	1.7963 (log .25439)	$a - 2.3864$ (log .37774) $b$
		Cl	1.3865 (log .14191)	$b - .79640$ (log 1.90113) $a$
	AgCl	Br	1.7965 (log .25443)	$(a - b)$
		Cl	1.04375 (log .01861)	$b - 0.7965$ (log 1.90119) $a$
AgBr + AgI	Ag	Br	3.7018 (log .56841)	$b - 1.7009$ (log .23067) $a$
		I	2.7009 (log .43150)	$a - 4.7019$ (log .67227) $b$
	AgCl	Br	2.7869 (log .44512)	$b - 1.7011$ (log .23073) $a$
		I	2.7013 (log .43156)	$a - 3.5398$ (log .54898) $b$
AgCl + AgI	Ag	Cl	.84304 (log 1.92585)	$b - .38735$ (log 1.58811) $a$
		I	1.3874 (log .14220)	$a - 1.84304$ (log .26554) $b$
	AgCl	Cl	.63462 (log 1.80251)	$b - .38736$ (log 1.58812) $a$
		I	1.3874 (log .14220)	$(a - b)$
KCl + NaCl	AgCl	K	2.4317 (log .38590)	$a - .99213$ (log 1.99657) $b$
		Na	.74488 (log 1.87209)	$b - 1.4317$ (log .15584) $a$
	Cl	K	2.4318 (log .38591)	$a - 4.0128$ (log .60345) $b$
		Na	3.0128 (log .47897)	$b - 1.4317$ (log .15585) $a$
	$K_2SO_4 + Na_2SO_4$	K	13.745 (log 1.13815)	$a - 11.313$ (log 1.05356) $b$
		Na	8.4934 (log .92908)	$b - 9.9258$ (log .99676) $a$
KCl + KBr	AgCl + AgBr	Cl	1.3794 (log .13969)	$b - 2.1759$ (log .33765) $a$
		Br	3.7451 (log .57346)	$a - 1.9485$ (log .28971) $b$
	AgCl	Cl	.66170 (log 1.82066)	$b - .79652$ (log 1.90120) $a$
		Br	1.7965 (log .25444)	$a - .93476$ (log 1.97070) $b$
	KCl	Cl	1.2715 (log .10433)	$b - .79638$ (log 1.90112) $a$
		Br	1.7962 (log .25436)	$a - 1.7962$ (log .25436) $b$
	$K_2SO_4$	Cl	1.0881 (log .03665)	$b - .79638$ (log 1.90112) $a$
		Br	1.7963 (log .25439)	$a - 1.5371$ (log .18669) $b$
KCl + KI	AgCl + AgI	Cl	.93558 (log 1.97108)	$b - 1.3229$ (log .12154) $a$
		I	2.8921 (log .46122)	$a - 1.5048$ (log .17748) $b$
	AgCl	Cl	.44879 (log 1.65204)	$b - .38735$ (log 1.58811) $a$
		I	1.3874 (log .14219)	$a - .72183$ (log 1.85844) $b$
	KCl	Cl	.86256 (log 1.93579)	$b - .38735$ (log 1.58811) $a$
		I	1.3874 (log .14219)	$a - 1.3874$ (log .14219) $b$

Found.		Sought.	Factors and Their Logarithms.
a.	b.		
KCl + KI	K <sub>2</sub> SO <sub>4</sub>	Cl I	7.3808 (log 1.86811) <i>b</i> - .38735 (log 1.58811) <i>a</i> 1.3874 (log .14219) <i>a</i> - 1.1872 (log .07451) <i>b</i>
KBr + KI	AgBr + AgI	Br I	4.1068 (log .61350) <i>b</i> - 5.8071 (log .76396) <i>a</i> 7.3762 (log .86783) <i>a</i> - 4.6759 (log .66986) <i>b</i>
	AgCl	Br I	1.9705 (log .29458) <i>b</i> - 1.7008 (log .23065) <i>a</i> 2.7008 (log .43149) <i>a</i> - 2.2436 (log .35094) <i>b</i>
	KCl	Br I	3.7873 (log .57833) <i>b</i> - 1.7008 (log .23065) <i>a</i> 2.7008 (log .43149) <i>a</i> - 4.3121 (log .63469) <i>b</i>
	K <sub>2</sub> SO <sub>4</sub>	Br I	3.2408 (log .51065) <i>b</i> - 1.7008 (log .23065) <i>a</i> 2.7008 (log .43149) <i>a</i> - 3.6898 (log .56701) <i>b</i>
K <sub>2</sub> SO <sub>4</sub> + Na <sub>2</sub> SO <sub>4</sub>	BaSO <sub>4</sub>	K Na	2.4316 (log .38589) <i>a</i> - 1.4807 (log .17046) <i>b</i> 1.0692 (log .02907) <i>b</i> - 1.4316 (log .15583) <i>a</i>
Na <sub>2</sub> SO <sub>4</sub> + Li <sub>2</sub> SO <sub>4</sub>	BaSO <sub>4</sub>	Na Li	1.4388 (log .15801) <i>a</i> - .63339 (log 1.83167) <i>b</i> .26722 (log 1.42687) <i>b</i> - .43883 (log 1.64230) <i>a</i>
LiCl + NaCl	AgCl	Li Na	.17901 (log 1.25288) <i>b</i> - .43874 (log 1.64221) <i>a</i> 1.4386 (log .15793) <i>a</i> - .42620 (log 1.62961) <i>b</i>
K <sub>2</sub> PtCl <sub>6</sub> + Rb <sub>2</sub> PtCl <sub>6</sub>	Pt K <sub>2</sub> SO <sub>4</sub> + Rb <sub>2</sub> SO <sub>4</sub>	K Rb K Rb	2.5086 (log .39943) <i>b</i> - .84474 (log 1.92672) <i>a</i> 1.8448 (log .26596) <i>a</i> - 4.6008 (log .66283) <i>b</i> .72428 (log 1.85991) <i>a</i> - 1.5689 (log .19560) <i>b</i> 2.8774 (log .45900) <i>b</i> - 1.0328 (log .01400) <i>a</i>
Rb <sub>2</sub> PtCl <sub>6</sub> + Cs <sub>2</sub> PtCl <sub>6</sub>	Pt Rb <sub>2</sub> SO <sub>4</sub> + Cs <sub>2</sub> SO <sub>4</sub>	Rb Cs Rb Cs	6.2336 (log .79474) <i>b</i> - 1.8035 (log .25612) <i>a</i> 2.8034 (log .44768) <i>a</i> - 8.3250 (log .92038) <i>b</i> 2.0961 (log .32142) <i>a</i> - 3.9003 (log .59109) <i>b</i> 5.2087 (log .71673) <i>b</i> - 2.4046 (log .38105) <i>a</i>
CaCO <sub>3</sub> + SrCO <sub>3</sub>	CO <sub>2</sub> CaSO <sub>4</sub> + SrSO <sub>4</sub>	Ca Sr Ca Sr	2.8315 (log .45202) <i>b</i> - .84408 (log 1.92638) <i>a</i> 1.8440 (log .26576) <i>a</i> - 4.1948 (log .62272) <i>b</i> 3.4544 (log .53837) <i>b</i> - 4.2982 (log .63329) <i>a</i> 6.9612 (log .84268) <i>a</i> - 5.1176 (log .70907) <i>b</i>
CaCO <sub>3</sub> + BaCO <sub>3</sub>	CO <sub>2</sub> CaSO <sub>4</sub> + BaSO <sub>4</sub>	Ca Ba Ca Ba	1.8489 (log .26692) <i>b</i> - .41212 (log 1.61502) <i>a</i> 1.4121 (log .14986) <i>a</i> - 3.2125 (log .50685) <i>b</i> 2.2552 (log .35318) <i>b</i> - 2.6671 (log .42604) <i>a</i> 5.3302 (log .72675) <i>a</i> - 3.9184 (log .59311) <i>b</i>
BaCO <sub>3</sub> + SrCO <sub>3</sub>	CO <sub>2</sub> BaSO <sub>4</sub> + SrSO <sub>4</sub>	Ba Sr Ba Sr	2.7589 (log .44074) <i>a</i> - 9.2550 (log .96638) <i>b</i> 7.8913 (log .89715) <i>b</i> - 1.7589 (log .24525) <i>a</i> 14.056 (log 1.14786) <i>a</i> - 11.296 (log 1.05294) <i>b</i> 9.6318 (log .98371) <i>b</i> - 11.391 (log 1.05657) <i>a</i>

# VII. — MOLECULAR AND ATOMIC WEIGHTS AND THEIR LOGARITHMS

Formula.	Formula Weight.		Formula.	Formula Weight.	
	Number.	Logarithm.		Number.	Logarithm.
Ag.....	107.93	2.03314	AsCl <sub>3</sub> .....	181.35	2.25852
Ag <sub>2</sub> .....	215.86	2.33417	$\frac{1}{2}$ As <sub>2</sub> O <sub>3</sub> .....	99.0	1.99564
Ag <sub>3</sub> AsO <sub>4</sub> .....	462.79	2.66538	As <sub>2</sub> O <sub>3</sub> .....	198.0	2.29667
AgBr.....	187.89	2.27391	AsO <sub>3</sub> .....	123.0	2.08991
AgCN.....	133.97	2.12700	(AsO <sub>3</sub> ) <sub>2</sub> .....	246.0	2.39094
AgCl.....	143.38	2.15649	As <sub>2</sub> O <sub>5</sub> .....	230.0	2.36173
AgI.....	234.90	2.37088	AsO <sub>4</sub> .....	139.0	2.14301
AgIO <sub>3</sub> .....	282.90	2.45163	(AsO <sub>4</sub> ) <sub>2</sub> .....	278.0	2.44404
AgNO <sub>2</sub> .....	153.97	2.18744	As <sub>2</sub> S <sub>3</sub> .....	246.18	2.39125
AgNO <sub>3</sub> .....	169.97	2.23037	As <sub>2</sub> S <sub>5</sub> .....	310.3	2.49178
$\frac{1}{2}$ Ag <sub>2</sub> O.....	115.93	2.06419			
Ag <sub>2</sub> O.....	231.86	2.36522	Au.....	197.2	2.29491
Ag <sub>3</sub> PO <sub>4</sub> .....	418.79	2.62200	AuCl <sub>3</sub> .....	303.55	2.48223
$\frac{1}{2}$ Ag <sub>2</sub> P <sub>2</sub> O <sub>7</sub> .....	302.86	2.48124	AuCl <sub>3</sub> .2H <sub>2</sub> O...	339.58	2.53094
Ag <sub>4</sub> P <sub>2</sub> O <sub>7</sub> .....	605.72	2.78227			
Ag <sub>2</sub> S.....	247.92	2.39431	B.....	11.0	1.04139
			B <sub>2</sub> .....	22.0	1.34242
Al.....	27.1	1.43297	B <sub>2</sub> O <sub>3</sub> .....	70.0	1.84510
Al <sub>2</sub> .....	54.2	1.73400	(B <sub>2</sub> O <sub>3</sub> ) <sub>2</sub> .....	140.0	2.14613
AlC <sub>3</sub> .....	144.4	2.15957			
AlCl <sub>3</sub> .....	133.45	2.12532	$\frac{1}{2}$ Ba.....	68.7	1.83696
(AlCl <sub>3</sub> ) <sub>2</sub> .....	266.90	2.42635	Ba.....	137.4	2.13799
AlCl <sub>3</sub> .6H <sub>2</sub> O...	241.55	2.38301	BaCl <sub>2</sub> .....	208.30	2.31869
AlF <sub>3</sub> .....	84.1	1.92480	BaCl <sub>2</sub> .2H <sub>2</sub> O...	244.332	2.38798
(AlF <sub>3</sub> ) <sub>2</sub> .....	168.2	2.22583	BaCO <sub>3</sub> .....	197.4	2.29535
AlK(SO <sub>4</sub> ) <sub>2</sub> . 12H <sub>2</sub> O.....	474.56	2.67629	BaCrO <sub>4</sub> .....	253.5	2.40398
AlNH <sub>4</sub> (SO <sub>4</sub> ) <sub>2</sub> . 12H <sub>2</sub> O.....	453.49	2.65657	BaF <sub>2</sub> .....	175.4	2.24388
AlNa <sub>3</sub> F <sub>6</sub> .....	210.25	2.32274	Ba(HCO <sub>3</sub> ) <sub>2</sub> ...	259.416	2.41400
$\frac{1}{2}$ Al <sub>2</sub> O <sub>3</sub> .....	51.1	1.70842	Ba(NO <sub>3</sub> ) <sub>2</sub> ....	261.48	2.41744
Al <sub>2</sub> O <sub>3</sub> .....	102.2	2.00945	BaO.....	153.4	2.18583
AlPO <sub>4</sub> .....	122.1	2.08672	BaO <sub>2</sub> .....	169.4	2.22891
(AlPO <sub>4</sub> ) <sub>2</sub> .....	244.2	2.38775	BaO <sub>2</sub> .8H <sub>2</sub> O...	313.53	2.49628
Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	342.38	2.53451	Ba(OH) <sub>2</sub> .....	171.416	2.23405
Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .18H <sub>2</sub> O	666.668	2.82391	Ba(OH) <sub>2</sub> .8H <sub>2</sub> O	315.55	2.49907
			BaS.....	169.46	2.22907
As.....	75.0	1.87506	BaSiF <sub>6</sub> .....	279.8	2.44685
As <sub>2</sub> .....	150.0	2.17609	BaSO <sub>4</sub> .....	233.46	2.36821
			(BaSO <sub>4</sub> ) <sub>2</sub> .....	466.92	2.66924

Formula.	Formula Weight.		Formula.	Formula Weight.	
	Number.	Logarithm.		Number.	Logarithm.
(BaSO <sub>4</sub> ) <sub>2</sub> .....	700.38	2.84534	Ca.....	40.1	1.60314
BaS <sub>2</sub> O <sub>3</sub> .H <sub>2</sub> O...	267.54	2.42738	Ca <sub>2</sub> (AsO <sub>4</sub> ) <sub>2</sub> ....	398.3	2.60021
Be.....	9.1	0.95904	CaC <sub>2</sub> .....	64.1	1.80686
BeCl <sub>2</sub> .....	80.0	1.90309	CaCl <sub>2</sub> .....	111.0	2.04532
BeO.....	25.1	1.39967	CaCl <sub>2</sub> .6H <sub>2</sub> O...	219.10	2.34064
BeSO <sub>4</sub> .4H <sub>2</sub> O...	177.224	2.24852	CaCO <sub>3</sub> .....	100.1	2.00043
Bi.....	208.5	2.31911	CaF <sub>2</sub> .....	78.1	1.89265
Bi <sub>2</sub> .....	417.0	2.62014	(CaF <sub>2</sub> ) <sub>2</sub> .....	156.2	2.19368
BiAsO <sub>4</sub> .....	347.50	2.54095	(CaF <sub>2</sub> ) <sub>3</sub> .....	234.3	2.36977
Bi(NO <sub>3</sub> ) <sub>3</sub> .5H <sub>2</sub> O.	484.70	2.68547	Ca(HCO <sub>3</sub> ) <sub>2</sub> ....	174.12	2.24084
$\frac{1}{2}$ Bi <sub>2</sub> O <sub>3</sub> .....	232.5	2.36642	Ca(NO <sub>3</sub> ) <sub>2</sub> .....	164.18	2.21532
Bi <sub>2</sub> O <sub>3</sub> .....	465.0	2.66745	CaO.....	56.1	1.74896
BiOCl.....	259.95	2.41489	(CaO) <sub>2</sub> .....	112.2	2.04999
BiONO <sub>3</sub> .....	286.54	2.45718	(CaO) <sub>3</sub> .....	168.3	2.22608
Bi <sub>2</sub> S <sub>3</sub> .....	513.18	2.71027	CaOCl <sub>2</sub> .....	127.0	2.10380
Br.....	79.96	1.90287	Ca(OH) <sub>2</sub> .....	74.116	1.86992
Br <sub>2</sub> .....	159.92	2.20390	Ca <sub>2</sub> (PO <sub>4</sub> ) <sub>2</sub> ....	310.3	2.49178
Br <sub>3</sub> .....	239.88	2.37999	CaS.....	72.16	1.85830
Br <sub>4</sub> .....	319.84	2.50493	CaSO <sub>4</sub> .....	136.16	2.13405
BrO <sub>3</sub> .....	127.96	2.10707	(CaSO <sub>4</sub> ) <sub>2</sub> .....	272.32	2.43508
C.....	12.00	1.07918	(CaSO <sub>4</sub> ) <sub>3</sub> .....	408.48	2.61117
C <sub>2</sub> .....	24.00	1.38021	CaSO <sub>4</sub> .2H <sub>2</sub> O..	172.19	2.23601
CH <sub>3</sub> .....	15.024	1.17689	CaSiO <sub>3</sub> .....	116.5	2.06633
CH <sub>4</sub> .....	16.032	1.20498	CaWO <sub>4</sub> .....	288.1	2.45954
C <sub>2</sub> H <sub>2</sub> .....	26.016	1.41524	Cd.....	112.4	2.05077
C <sub>2</sub> H <sub>4</sub> .....	28.032	1.44765	CdCl <sub>2</sub> .....	183.3	2.26316
C <sub>2</sub> H <sub>5</sub> .....	29.04	1.46300	CdCl <sub>2</sub> .2H <sub>2</sub> O...	219.33	2.34110
C <sub>2</sub> H <sub>6</sub> .....	30.048	1.47781	CdCO <sub>3</sub> .....	172.4	2.23654
C <sub>6</sub> H <sub>6</sub> .....	78.05	1.89237	Cd(NO <sub>3</sub> ) <sub>2</sub> .....	236.48	2.37379
CN.....	26.04	1.41564	Cd(NO <sub>3</sub> ) <sub>2</sub> .4H <sub>2</sub> O	308.54	2.48932
CNS.....	58.10	1.76418	CdO.....	128.4	2.10857
CO.....	28.00	1.44716	CdS.....	144.46	2.15975
CO <sub>2</sub> .....	44.00	1.64345	CdSO <sub>4</sub> .....	208.46	2.31903
(CO <sub>2</sub> ) <sub>2</sub> .....	88.00	1.94448	CdSO <sub>4</sub> .2 $\frac{1}{2}$ H <sub>2</sub> O.	256.50	2.40909
CO <sub>3</sub> .....	60.00	1.77815	Ce.....	140.25	2.14691
CS <sub>2</sub> .....	76.12	1.88150	Ce <sub>2</sub> .....	280.5	2.44793
$\frac{1}{2}$ Ca.....	20.05	1.30211	Ce(NO <sub>3</sub> ) <sub>4</sub> .....	388.41	2.58929
			Ce(NO <sub>3</sub> ) <sub>4</sub> .(NH <sub>4</sub> NO <sub>3</sub> ) <sub>2</sub> .H <sub>2</sub> O..	566.81	2.75344
			CeO <sub>2</sub> .....	172.25	2.23616
			(CeO <sub>2</sub> ) <sub>2</sub> .....	344.5	2.53719



Formula.	Formula Weight.		Formula.	Formula Weight.	
	Number.	Logarithm.		Number.	Logarithm.
Ce <sub>2</sub> O <sub>3</sub> .....	328.5	2.51654	(CsCl) <sub>2</sub> .....	336.70	2.52724
Ce <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	568.68	2.75487	Cs <sub>2</sub> CO <sub>3</sub> .....	325.8	2.51295
Cl.....	35.45	1.54962	CsHCO <sub>3</sub> .....	193.91	2.28762
Cl <sub>2</sub> .....	70.90	1.85065	Cs <sub>2</sub> O.....	281.8	2.44994
Cl <sub>3</sub> .....	106.35	2.02674	Cs <sub>2</sub> PtCl <sub>6</sub> .....	673.3	2.82821
Cl <sub>4</sub> .....	141.80	2.15168	Cs <sub>2</sub> SO <sub>4</sub> .....	361.86	2.55854
Cl <sub>5</sub> .....	177.25	2.24859	Cu.....	63.6	1.80346
Cl <sub>2</sub> O <sub>8</sub> .....	150.90	2.17869	Cu <sub>2</sub> .....	127.2	2.10449
ClO <sub>2</sub> .....	83.45	1.92143	$\frac{1}{2}$ Cu <sub>2</sub> {C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> } As <sub>2</sub> O <sub>6</sub> .....	253.61	2.40417
Cl <sub>2</sub> O <sub>7</sub> .....	182.90	2.26221	CuCl.....	99.05	1.99585
ClO <sub>4</sub> .....	99.45	1.99760	CuCl <sub>2</sub> .....	134.50	2.12872
Co.....	59	1.77085	CuCl <sub>2</sub> ·2H <sub>2</sub> O....	170.53	2.23180
Co <sub>2</sub> .....	118	2.07188	CuCNS.....	121.70	2.08529
Co <sub>3</sub> .....	177	2.24797	CuI.....	190.57	2.28005
CoCl <sub>2</sub> ·6H <sub>2</sub> O....	238.00	2.37658	CuFeS <sub>2</sub> .....	183.62	2.26392
Co(NO <sub>3</sub> ) <sub>2</sub> ·6H <sub>2</sub> O	291.18	2.46415	Cu(NO <sub>3</sub> ) <sub>2</sub> ·6H <sub>2</sub> O	295.78	2.47097
Co(NO <sub>3</sub> ) <sub>3</sub> .....			Cu <sub>2</sub> O.....	143.2	2.15594
(KNO <sub>3</sub> ) <sub>3</sub> .....	452.69	2.65580	CuO.....	79.6	1.90091
CoO.....	75.	1.87506	Cu <sub>2</sub> S.....	159.26	2.20211
(CoO) <sub>2</sub> .....	150.	2.17609	CuSO <sub>4</sub> .....	159.66	2.20319
Co <sub>2</sub> O <sub>3</sub> .....	241.	2.38202	CuSO <sub>4</sub> ·5H <sub>2</sub> O....	249.74	2.39749
CoSO <sub>4</sub> .....	155.06	2.19050	F.....	19	1.27875
CoSO <sub>4</sub> ·7H <sub>2</sub> O....	281.17	2.44897	Fe.....	55.9	1.74741
(CoSO <sub>4</sub> ) <sub>2</sub> ·(K <sub>2</sub> SO <sub>4</sub> ) <sub>3</sub> .....	833.20	2.92075	Fe <sub>2</sub> .....	111.8	2.04844
Cr.....	52.1	1.71684	FeAsO <sub>4</sub> .....	194.9	2.28981
Cr <sub>2</sub> .....	104.2	2.01787	FeCl <sub>3</sub> .....	162.25	2.21019
$\frac{1}{2}$ Cr <sub>2</sub> O <sub>3</sub> .....	76.1	1.88138	FeCl <sub>3</sub> ·6H <sub>2</sub> O....	270.35	2.43193
Cr <sub>2</sub> O <sub>3</sub> .....	152.2	2.18241	Fe <sub>7</sub> (CN) <sub>18</sub> .....	860.02	2.93451
CrO <sub>3</sub> .....	100.1	2.00043	FeCO <sub>3</sub> .....	115.9	2.06408
(CrO <sub>3</sub> ) <sub>2</sub> .....	200.2	2.30146	$\frac{1}{2}$ Fe(HCO <sub>3</sub> ) <sub>2</sub> .....	88.96	1.94918
CrO <sub>4</sub> .....	116.1	2.06483	Fe(HCO <sub>3</sub> ) <sub>2</sub> .....	177.92	2.25022
Cr <sub>2</sub> O <sub>7</sub> .....	216.2	2.33486	FeO.....	71.9	1.85673
$\frac{1}{2}$ Cr <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> · 18H <sub>2</sub> O.....	358.33	2.55429	$\frac{1}{2}$ Fe <sub>2</sub> O <sub>3</sub> .....	79.9	1.90255
Cs.....	132.9	2.12352	Fe <sub>2</sub> O <sub>3</sub> .....	159.8	2.20358
Cs <sub>2</sub> .....	265.8	2.42455	$\frac{1}{2}$ Fe <sub>2</sub> O <sub>4</sub> .....	77.23	1.88779
CsAl(SO <sub>4</sub> ) <sub>2</sub> · 12H <sub>2</sub> O.....	568.31	2.75459	Fe <sub>2</sub> O <sub>4</sub> .....	231.7	2.36493
CsCl.....	168.35	2.22621	FePO <sub>4</sub> .....	150.9	2.17869
			FeS.....	87.96	1.94429
			FeS <sub>2</sub> .....	120.02	2.07925
			FeSO <sub>4</sub> .....	151.96	2.18173

Formula.	Formula Weight.		Formula.	Formula Weight.	
	Number.	Logarithm.		Number.	Logarithm.
FeSO <sub>4</sub> .7H <sub>2</sub> O...	278.07	2.44415	HNO <sub>2</sub> .....	47.048	1.67254
FeSO <sub>4</sub> .(NH <sub>4</sub> ) <sub>2</sub>			HNO <sub>3</sub> .....	63.048	1.79968
SO <sub>4</sub> .6H <sub>2</sub> O...	392.26	2.59358	(HNO <sub>3</sub> ) <sub>2</sub> .....	126.10	2.10071
$\frac{1}{2}$ Fe <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	199.99	2.30101	HNaCO <sub>3</sub> .....	84.06	1.92458
Fe <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	399.98	2.60204	HNa <sub>2</sub> PO <sub>4</sub>		
			12H <sub>2</sub> O.....	358.3	2.55425
Ga.....	70	1.84510	HO.....	17.008	1.23065
Ga <sub>2</sub> O <sub>3</sub> .....	188.	2.27416	H <sub>2</sub> O.....	18.016	1.25565
Ga <sub>2</sub> S <sub>3</sub> .....	236.18	2.37324	H <sub>2</sub> O <sub>2</sub> .....	34.016	1.53168
			H <sub>3</sub> PO <sub>4</sub> .....	98.02	1.99133
Ge.....	72.5	1.86034	H <sub>3</sub> PtCl <sub>6</sub> .6H <sub>2</sub> O..	517.61	2.71400
GeO <sub>2</sub> .....	104.5	2.01912	H <sub>2</sub> S.....	34.076	1.53245
			H <sub>2</sub> SO <sub>3</sub> .....	82.076	1.91422
H.....	1.008	0.00346	H <sub>2</sub> SO <sub>4</sub> .....	98.076	1.99156
H <sub>2</sub> .....	2.016	0.30449	$\frac{1}{2}$ H <sub>2</sub> SO <sub>4</sub> .....	49.038	1.69053
H <sub>3</sub> .....	3.024	0.48058	H <sub>2</sub> SeO <sub>3</sub> .....	129.22	2.11131
H <sub>4</sub> .....	4.032	0.60552	H <sub>2</sub> SeO <sub>4</sub> .....	145.22	2.16202
H <sub>5</sub> .....	5.040	0.70243	H <sub>2</sub> SiF <sub>6</sub> .....	144.42	2.15962
H <sub>6</sub> .....	6.048	0.78161	H <sub>2</sub> SiO <sub>3</sub> .....	78.42	1.89441
H <sub>2</sub> AsO <sub>3</sub> .....	126.02	2.10046	H <sub>2</sub> TeO <sub>4</sub> .....	193.62	2.28694
H <sub>3</sub> AsO <sub>4</sub> .....	142.02	2.15235	H <sub>2</sub> TeO <sub>4</sub> .2H <sub>2</sub> O..	299.65	2.36107
HAuCl <sub>4</sub> .4H <sub>2</sub> O..	412.07	2.61497			
H <sub>3</sub> BO <sub>3</sub> .....	62.024	1.79256	Hg.....	200	2.30103
(H <sub>3</sub> BO <sub>3</sub> ) <sub>2</sub> .....	124.05	2.09359	HgCl.....	235.45	2.37190
(H <sub>3</sub> BO <sub>3</sub> ) <sub>3</sub> .....	186.07	2.26968	HgCl <sub>2</sub> .....	270.90	2.43281
(H <sub>3</sub> BO <sub>3</sub> ) <sub>4</sub> .....	248.10	2.39462	Hg(CN) <sub>2</sub> .....	252.08	2.40154
HBr.....	80.968	1.90831	HgI <sub>2</sub> .....	453.94	2.65700
$\frac{1}{2}$ H <sub>2</sub> C <sub>2</sub> O <sub>4</sub> .....	45.008	1.65329	HgNO <sub>3</sub> .....	262.04	2.41837
H <sub>2</sub> C <sub>2</sub> O <sub>4</sub> .....	90.016	1.95432	Hg(NO <sub>3</sub> ) <sub>2</sub> .....	324.08	2.51065
$\frac{1}{2}$ H <sub>2</sub> C <sub>2</sub> O <sub>4</sub> .2H <sub>2</sub> O..	63.025	1.79952	Hg(NO <sub>3</sub> ) <sub>2</sub> .H <sub>2</sub> O..	342.10	2.53415
H <sub>2</sub> C <sub>2</sub> O <sub>4</sub> .2H <sub>2</sub> O...	126.05	2.10054	$\frac{1}{2}$ Hg <sub>2</sub> O.....	208	2.31806
H.C <sub>3</sub> H <sub>3</sub> O <sub>2</sub> .....	60.032	1.77838	Hg <sub>2</sub> O.....	416	2.61909
H.C <sub>3</sub> H <sub>3</sub> O <sub>2</sub> .....	90.05	1.95447	HgO.....	216.0	2.33445
H <sub>2</sub> .C <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .....	150.05	2.17623	HgS.....	232.06	2.36560
H <sub>2</sub> .C <sub>6</sub> H <sub>6</sub> O <sub>7</sub> .....	192.06	2.28345	HgSO <sub>4</sub> .....	296.06	2.47138
HCl.....	36.458	1.56180			
HClO <sub>3</sub> .....	84.458	1.92664	I.....	126.97	2.10370
HCN.....	27.048	1.43214	I <sub>2</sub> .....	253.94	2.40473
HCO <sub>2</sub> .....	45.008	1.65329	I <sub>3</sub> .....	380.91	2.58082
HF.....	20.008	1.30121	I <sub>4</sub> .....	507.88	2.70576
HI.....	127.98	2.10713	IO <sub>3</sub> .....	174.97	2.24297
(HI) <sub>2</sub> .....	255.96	2.40817	(IO <sub>3</sub> ) <sub>2</sub> .....	349.94	2.54399
HKCO <sub>3</sub> .....	100.16	2.00069	$\frac{1}{2}$ I <sub>2</sub> O <sub>5</sub> .....	166.97	2.22264

Formula.	Formula Weight.		Formula.	Formula Weight.	
	Number.	Logarithm.		Number.	Logarithm.
I <sub>2</sub> O <sub>5</sub> .....	333.94	2.52367	KHC <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .....	188.19	2.27450
IO <sub>3</sub> .....	190.97	2.28096	KHCO <sub>3</sub> .....	100.16	2.00069
(IO <sub>4</sub> ) <sub>2</sub> .....	381.94	2.58199	(KHCO <sub>3</sub> ) <sub>2</sub> .....	200.32	2.30171
$\frac{1}{2}$ I <sub>2</sub> O <sub>7</sub> .....	182.97	2.26237	KH <sub>2</sub> (C <sub>2</sub> O <sub>4</sub> ) <sub>2</sub> .....		
I <sub>2</sub> O <sub>7</sub> .....	365.94	2.56341	2H <sub>2</sub> O.....	254.21	2.40519
In.....	115	2.06070	KH(IO <sub>3</sub> ) <sub>2</sub> .....	390.10	2.59118
In <sub>2</sub> .....	230	2.36173	KHSO <sub>4</sub> .....	136.22	2.13423
In <sub>2</sub> O <sub>3</sub> .....	278	2.44404	(KHSO <sub>4</sub> ) <sub>2</sub> .....	272.44	2.43527
In <sub>2</sub> S <sub>3</sub> .....	326.18	2.51345	KI.....	166.12	2.22042
K.....	39.15	1.59273	$\frac{1}{2}$ KIO <sub>3</sub> .....	35.69	1.55255
K <sub>2</sub> .....	78.30	1.89376	KIO <sub>3</sub> .....	214.12	2.33066
KAl(SO <sub>4</sub> ) <sub>2</sub> .....			$\frac{1}{2}$ KMnO <sub>4</sub> .....	31.63	1.50010
12H <sub>2</sub> O.....	474.56	2.67629	KMnO <sub>4</sub> .....	158.15	2.19907
K <sub>3</sub> AsO <sub>4</sub> .....	256.45	2.40901	K <sub>2</sub> MnO <sub>4</sub> .....	197.3	2.29513
KAu(CN) <sub>4</sub> ·H <sub>2</sub> O.....	358.53	2.55452	KNO <sub>2</sub> .....	85.19	1.93039
KBF <sub>4</sub> .....	126.15	2.10089	(KNO <sub>2</sub> ) <sub>2</sub> .....	170.38	2.23142
(KBF <sub>4</sub> ) <sub>4</sub> .....	504.60	2.70295	KNO <sub>3</sub> .....	101.19	2.00514
KBr.....	119.11	2.07595	KNaC <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .....	210.23	2.32269
KBrO <sub>3</sub> .....	167.11	2.22301	$\frac{1}{2}$ K <sub>2</sub> O.....	47.15	1.67348
K <sub>2</sub> C <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .....	226.33	2.35474	K <sub>2</sub> O.....	94.3	1.97451
KCl.....	74.60	1.87274	KOH.....	56.16	1.74943
(KCl) <sub>2</sub> .....	149.20	2.17377	K <sub>2</sub> PdCl <sub>6</sub> .....	397.5	2.59934
KClO <sub>3</sub> .....	122.60	2.08849	K <sub>2</sub> PtCl <sub>6</sub> .....	485.8	2.68646
KClO <sub>4</sub> .....	138.60	2.14176	K <sub>2</sub> S.....	110.36	2.04281
KCN.....	65.19	1.81418	K <sub>2</sub> SO <sub>4</sub> .....	174.36	2.24145
KCNS.....	97.25	1.98789	KSbOC <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .....		
K <sub>2</sub> CO <sub>3</sub> .....	138.30	2.14082	$\frac{1}{2}$ H <sub>2</sub> O.....	332.39	2.52165
K <sub>2</sub> CrO <sub>4</sub> .....	194.4	2.28870	K <sub>2</sub> SiF <sub>6</sub> .....	220.70	2.34380
$\frac{1}{2}$ K <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> .....	49.083	1.69093	K <sub>2</sub> SiO <sub>3</sub> .....	154.7	2.18949
$\frac{1}{2}$ K <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> .....	147.25	2.16806	La.....	138.9	2.14270
K <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> .....	294.5	2.46909	La <sub>2</sub> O <sub>3</sub> .....	325.8	2.51295
KCr(SO <sub>4</sub> ) <sub>2</sub> .....			Li.....	7.03	0.84696
12H <sub>2</sub> O.....	499.56	2.69859	Li <sub>2</sub> .....	14.06	1.14799
KF·2H <sub>2</sub> O.....	94.182	1.97397	LiCl.....	42.48	1.62818
K <sub>3</sub> Fe(CN) <sub>6</sub> .....	329.59	2.51798	Li <sub>2</sub> CO <sub>3</sub> .....	74.06	1.86958
K <sub>4</sub> Fe(CN) <sub>6</sub> .....	368.74	2.56672	LiHCO <sub>3</sub> .....	68.04	1.83275
K <sub>4</sub> Fe(CN) <sub>6</sub> .....			$\frac{1}{2}$ Li <sub>2</sub> O.....	15.03	1.17696
3H <sub>2</sub> O.....	422.79	2.62612	Li <sub>2</sub> O.....	30.06	1.47799
K <sub>2</sub> GeF <sub>6</sub> .....	264.8	2.42292	Li <sub>3</sub> PO <sub>4</sub> .....	116.09	2.06479
K <sub>2</sub> HAsO <sub>4</sub> .....	218.31	2.33907	Li <sub>2</sub> SO <sub>4</sub> .....	110.12	2.04187

Formula.	Formula Weight.		Formula.	Formula Weight.	
	Number.	Logarithm.		Number.	Logarithm.
Mg.....	24.36	1.38668	MoO <sub>3</sub> .....	144	2.15836
Mg <sub>2</sub> .....	48.72	1.68771	MoS <sub>3</sub> .....	192.18	2.28371
$\frac{1}{2}$ Mg <sub>2</sub> As <sub>2</sub> O <sub>7</sub> .....	155.36	2.19134	N.....	14.04	1.14737
Mg <sub>2</sub> As <sub>2</sub> O <sub>7</sub> .....	310.72	2.49237	N <sub>2</sub> .....	28.08	1.44080
MgBr <sub>2</sub> .....	184.28	2.26548	NH <sub>2</sub> .....	16.06	1.20575
MgBr <sub>2</sub> .6H <sub>2</sub> O....	292.38	2.46595	NH <sub>3</sub> .....	17.064	1.23208
MgCl <sub>2</sub> .....	95.26	1.97891	(NH <sub>3</sub> ) <sub>2</sub> .....	34.128	1.53311
MgCl <sub>2</sub> .6H <sub>2</sub> O....	203.36	2.30827	NH <sub>4</sub> .....	18.072	1.25701
MgCl <sub>2</sub> .KCl			(NH <sub>4</sub> ) <sub>2</sub> .....	36.144	1.55804
$\frac{1}{2}$ .6H <sub>2</sub> O.....	277.96	2.44398	NH <sub>4</sub> Al(SO <sub>4</sub> ) <sub>2</sub> .....		
MgCO <sub>3</sub> .....	84.36	1.92614	12H <sub>2</sub> O.....	453.49	2.65657
Mg(HCO <sub>3</sub> ) <sub>2</sub> ....	146.38	2.16547	NH <sub>4</sub> Br.....	98.03	1.99137
MgI <sub>2</sub> .....	278.30	2.44451	NH <sub>4</sub> Cl.....	53.52	1.72852
MgNH <sub>4</sub> AsO <sub>4</sub> .....			(NH <sub>4</sub> Cl) <sub>2</sub> .....	107.04	2.02957
$\frac{1}{2}$ H <sub>2</sub> O.....	190.44	2.27976	(NH <sub>4</sub> ) <sub>2</sub> CO <sub>3</sub> .....	96.14	1.98922
[MgNH <sub>4</sub> AsO <sub>4</sub> .....			(NH <sub>4</sub> ) <sub>2</sub> C <sub>2</sub> O <sub>4</sub> .....		
$\frac{1}{2}$ H <sub>2</sub> O] <sub>2</sub> .....	380.88	2.58079	2H <sub>2</sub> O.....	160.18	2.20461
MgNH <sub>4</sub> PO <sub>4</sub> .....			NH <sub>4</sub> HCO <sub>3</sub> .....	79.08	1.89807
6H <sub>2</sub> O.....	245.53	2.39010	NH <sub>4</sub> Fe(SO <sub>4</sub> ) <sub>2</sub> .....		
MgO.....	40.36	1.60595	12H <sub>2</sub> O.....	482.28	2.68330
$\frac{1}{2}$ Mg <sub>2</sub> P <sub>2</sub> O <sub>7</sub> .....	111.36	2.04673	(NH <sub>4</sub> ) <sub>2</sub> Fe(SO <sub>4</sub> ) <sub>2</sub> .....		
Mg <sub>2</sub> P <sub>2</sub> O <sub>7</sub> .....	222.72	2.34776	6H <sub>2</sub> O.....	392.26	2.59358
MgSO <sub>4</sub> .....	120.42	2.08070	NH <sub>4</sub> I.....	145.04	2.16149
MgSO <sub>4</sub> .7H <sub>2</sub> O....	246.53	2.39187	(NH <sub>4</sub> ) <sub>2</sub> MoO <sub>4</sub> .....	196.14	2.29258
MgSiO <sub>3</sub> .....	100.76	2.00329	NH <sub>4</sub> NO <sub>3</sub> .....	80.11	1.90369
			(NH <sub>4</sub> NO <sub>3</sub> ) <sub>2</sub> .....	160.22	2.20472
Mn.....	55	1.74036	NH <sub>4</sub> NaHPO <sub>4</sub> .....		
Mn <sub>2</sub> .....	110	2.04139	4H <sub>2</sub> O.....	209.19	2.32055
MnCO <sub>3</sub> .....	115	2.06070	(NH <sub>4</sub> ) <sub>2</sub> O.....	52.14	1.71717
MnCl <sub>2</sub> .4H <sub>2</sub> O....	197.96	2.29658	NH <sub>4</sub> OH.....	35.08	1.54506
Mn(HCO <sub>3</sub> ) <sub>2</sub> .....	177.02	2.24801	$\frac{1}{2}$ (NH <sub>4</sub> ) <sub>2</sub> PO <sub>4</sub> .....		
MnO.....	71.0	1.85126	12MoO <sub>3</sub> .....	156.44	2.19434
MnO <sub>2</sub> .....	87.0	1.93952	(NH <sub>4</sub> ) <sub>3</sub> PO <sub>4</sub> .....		
Mn <sub>2</sub> O <sub>3</sub> .....	158.0	2.19866	12MoO <sub>3</sub> .....	1877.2	3.27351
Mn <sub>3</sub> O <sub>4</sub> .....	229.0	2.35984	$\frac{1}{2}$ (NH <sub>4</sub> ) <sub>2</sub> PtCl <sub>6</sub> .....	221.82	2.34600
$\frac{1}{2}$ Mn <sub>2</sub> P <sub>2</sub> O <sub>7</sub> .....	142.0	2.15229	(NH <sub>4</sub> ) <sub>2</sub> PtCl <sub>6</sub> .....	443.64	2.64703
Mn <sub>2</sub> P <sub>2</sub> O <sub>7</sub> .....	284.0	2.45332	NH <sub>4</sub> CNS.....	76.17	1.88178
MnS.....	87.06	1.93982	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .....	132.20	2.12123
MnSO <sub>4</sub> .....	151.06	2.17915	N <sub>2</sub> O.....	44.08	1.64424
MnSO <sub>4</sub> .4H <sub>2</sub> O....	223.12	2.34854	NO.....	30.04	1.47770
MnSO <sub>4</sub> .7H <sub>2</sub> O....	277.17	2.44275	NO <sub>2</sub> .....	46.04	1.66314
			$\frac{1}{2}$ N <sub>2</sub> O <sub>3</sub> .....	38.04	1.58070
Mo.....	96	1.98227			

Formula.	Formula Weight.		Formula.	Formula Weight.	
	Number.	Logarithm.		Number.	Logarithm.
N <sub>2</sub> O <sub>3</sub> .....	76.08	1.88127	Na <sub>4</sub> P <sub>2</sub> O <sub>7</sub> .....	266.20	2.42521
NO <sub>2</sub> .....	62.04	1.79267	$\frac{1}{2}$ Na <sub>4</sub> P <sub>2</sub> O <sub>7</sub> ·10H <sub>2</sub> O	223.18	2.34865
$\frac{1}{2}$ N <sub>2</sub> O <sub>5</sub> .....	54.04	1.73272	Na <sub>3</sub> RhCl <sub>6</sub> .....	384.85	2.58530
N <sub>2</sub> O <sub>5</sub> .....	108.08	2.03375	Na <sub>2</sub> S.....	78.16	1.89298
Na.....	23.05	1.36267	Na <sub>2</sub> SO <sub>3</sub> .....	126.16	2.10092
Na <sub>2</sub> .....	46.10	1.66370	Na <sub>2</sub> SO <sub>3</sub> ·7H <sub>2</sub> O..	252.27	2.40187
Na <sub>3</sub> AlF <sub>6</sub> .....	210.25	2.32274	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> ·5H <sub>2</sub> O..	248.30	2.39498
Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> .....	202.10	2.30557	Na <sub>2</sub> SO <sub>4</sub> .....	142.16	2.15278
Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> ·10H <sub>2</sub> O	382.26	2.58236	Na <sub>2</sub> SO <sub>4</sub> ·10H <sub>2</sub> O..	322.32	2.50829
NaBr.....	103.01	2.01288	Ni.....	58.7	1.76864
NaC <sub>2</sub> H <sub>3</sub> O <sub>2</sub> .....	82.07	1.91418	NiCl <sub>2</sub> ·6H <sub>2</sub> O....	237.70	2.37603
NaC <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ·3H <sub>2</sub> O	136.12	2.13392	Ni(NO <sub>3</sub> ) <sub>2</sub> ·6H <sub>2</sub> O	290.88	2.46371
NaCl.....	58.50	1.76716	NiO.....	74.7	1.87332
(NaCl) <sub>2</sub> .....	117.00	2.06819	NiSO <sub>4</sub> .....	154.76	2.18966
NaClO <sub>4</sub> .....	122.50	2.08814	NiSO <sub>4</sub> ·6H <sub>2</sub> O....	262.86	2.41973
NaCN.....	49.09	1.69099	NiSO <sub>4</sub> ·7H <sub>2</sub> O....	280.87	2.44851
$\frac{1}{2}$ Na <sub>2</sub> CO <sub>3</sub> .....	53.05	1.72469	O.....	16.00	1.20412
Na <sub>2</sub> CO <sub>3</sub> .....	106.1	2.02572	O <sub>2</sub> .....	32.00	1.50515
Na <sub>2</sub> CO <sub>3</sub> ·10H <sub>2</sub> O	286.26	2.45676	O <sub>3</sub> .....	48.00	1.68124
NaF.....	42.05	1.62377	O <sub>4</sub> .....	64.00	1.80618
(NaF) <sub>2</sub> .....	84.10	1.92480	O <sub>5</sub> .....	80.00	1.90309
Na <sub>2</sub> Fe(CN) <sub>6</sub> .....	304.34	2.48336	O <sub>6</sub> .....	96.00	1.98227
Na <sub>2</sub> HAsO <sub>3</sub> .....	170.11	2.23072	OH.....	17.008	1.23065
Na <sub>2</sub> HAsO <sub>4</sub> .....	186.11	2.26977	Os.....	191	2.28103
NaHCO <sub>3</sub> .....	84.06	1.92459	OsO <sub>4</sub> .....	255	2.40654
Na <sub>2</sub> HPO <sub>4</sub> .....	142.11	2.15261	P.....	31.	1.49136
Na <sub>2</sub> HPO <sub>4</sub> ·12H <sub>2</sub> O.....	358.3	2.55425	P <sub>2</sub> .....	62.	1.79239
NaHSO <sub>3</sub> .....	104.12	2.01753	PCl <sub>3</sub> .....	137.35	2.13783
NaHSO <sub>4</sub> .....	120.12	2.07961	PCl <sub>5</sub> .....	208.25	2.31859
NaHSO <sub>4</sub> ·H <sub>2</sub> O..	138.13	2.14030	$\frac{1}{2}$ P <sub>2</sub> O <sub>5</sub> .....	71.0	1.85126
NaI.....	150.02	2.17615	P <sub>2</sub> O <sub>5</sub> .....	142.0	2.15229
NaNH <sub>2</sub> HPO <sub>4</sub> ·4H <sub>2</sub> O.....	209.19	2.32055	PO <sub>4</sub> .....	95.0	1.97772
NaNO <sub>2</sub> .....	69.09	1.83942	2PO <sub>4</sub> .....	190.0	2.27875
NaNO <sub>3</sub> .....	85.09	1.92988	P <sub>2</sub> O <sub>3</sub> .....	110.0	2.04139
$\frac{1}{2}$ Na <sub>2</sub> O.....	31.05	1.49206	Pb.....	206.9	2.31576
Na <sub>2</sub> O.....	62.10	1.79309	Pb(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> ·3H <sub>2</sub> O.....	379.00	2.57864
Na <sub>2</sub> O <sub>2</sub> .....	78.10	1.89265	PbCl <sub>2</sub> .....	277.8	2.44373
NaOH.....	40.06	1.60271			
NaPO <sub>3</sub> .....	102.05	2.00882			
Na <sub>2</sub> PO <sub>4</sub> .....	164.15	2.21524			

Formula.	Formula Weight.		Formula.	Formula Weight.	
	Number.	Logarithm.		Number.	Logarithm.
PbCO <sub>3</sub> .....	266.9	2.42635	SCN.....	58.10	1.76418
$\frac{1}{3}$ (PbCO <sub>3</sub> ) <sub>2</sub> .....			SO <sub>2</sub> .....	64.06	1.80659
Pb(OH) <sub>2</sub> .....	258.24	2.45843	SO <sub>3</sub> .....	80.06	1.90342
(PbCO <sub>3</sub> ) <sub>2</sub> .....			SO <sub>4</sub> .....	96.06	1.98254
Pb(OH) <sub>2</sub> .....	774.72	2.88914			
PbCrO <sub>4</sub> .....	323.0	2.50920	Sb.....	120.2	2.07990
PbI <sub>2</sub> .....	460.84	2.66355	Sb <sub>2</sub> .....	240.4	2.38093
PbMoO <sub>4</sub> .....	366.9	2.56455	SbCl <sub>3</sub> .....	226.55	2.35517
Pb(NO <sub>3</sub> ) <sub>2</sub> .....	330.98	2.51980	SbCl <sub>5</sub> .....	297.45	2.47342
PbO.....	222.9	2.34811	$\frac{1}{3}$ Sb <sub>2</sub> O <sub>3</sub> .....	144.2	2.15897
PbO <sub>2</sub> .....	238.9	2.37822	Sb <sub>2</sub> O <sub>3</sub> .....	288.4	2.46000
Pb <sub>3</sub> O <sub>4</sub> .....	684.7	2.83550	Sb <sub>2</sub> O <sub>4</sub> .....	304.4	2.48344
PbS.....	238.96	2.37833	$\frac{1}{2}$ Sb <sub>2</sub> O <sub>5</sub> .....	160.2	2.20466
PbSO <sub>4</sub> .....	302.96	2.48138	Sb <sub>2</sub> O <sub>5</sub> .....	320.4	2.50569
			SbOCl.....	171.65	2.23465
Pd.....	106.5	2.02735	SbOKC <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .....		
PdCl <sub>2</sub> ·2H <sub>2</sub> O.....	213.43	2.32926	$\frac{1}{2}$ H <sub>2</sub> O.....	332.39	2.52165
PdI <sub>2</sub> .....	360.44	2.55683	Sb <sub>2</sub> S <sub>3</sub> .....	336.58	2.52709
Pd(NO <sub>3</sub> ) <sub>2</sub> .....	230.58	2.36282	Sb <sub>2</sub> S <sub>5</sub> .....	400.70	2.60282
Pt.....	194.8	2.28959	Se.....	79.2	1.89873
PtCl <sub>4</sub> .....	336.60	2.52711	SeO <sub>2</sub> .....	111.2	2.04610
PtCl <sub>4</sub> ·5H <sub>2</sub> O.....	426.68	2.63010	SeO <sub>3</sub> .....	127.2	2.10449
PtCl <sub>6</sub> .....	407.50	2.61013			
			Si.....	28.4	1.45332
Rb.....	85.5	1.93197	Si <sub>2</sub> .....	56.8	1.75435
Rb <sub>2</sub> .....	171.0	2.23300	SiF <sub>4</sub> .....	104.4	2.01870
RbAl(SO <sub>4</sub> ) <sub>2</sub> .....			SiF <sub>6</sub> .....	142.4	2.15351
12H <sub>2</sub> O.....	520.91	2.71676	SiO <sub>2</sub> .....	60.4	1.78104
RbCl.....	120.95	2.08261	SiO <sub>3</sub> .....	76.4	1.88309
(RbCl) <sub>2</sub> .....	241.90	2.38364	SiO <sub>4</sub> .....	92.4	1.96567
Rb <sub>2</sub> CO <sub>3</sub> .....	231.	2.36361	Si <sub>2</sub> O <sub>7</sub> .....	168.8	2.22737
RbHCO <sub>3</sub> .....	146.51	2.16586	Si(OH) <sub>4</sub> .....	96.43	1.98422
(RbHCO <sub>3</sub> ) <sub>2</sub> .....	293.02	2.46690			
Rb <sub>2</sub> O.....	187.	2.27184	Sn.....	119.0	2.07555
Rb <sub>2</sub> PtCl <sub>6</sub> .....	578.50	2.76230	SnCl <sub>2</sub> .....	189.90	2.27852
Rb <sub>2</sub> SO <sub>4</sub> .....	267.06	2.42661	SnCl <sub>2</sub> ·2H <sub>2</sub> O.....	225.93	2.35398
			SnCl <sub>4</sub> .....	260.8	2.41631
Rh.....	103.0	2.01284	SnCl <sub>4</sub> ·(NH <sub>4</sub> Cl) <sub>2</sub> .....	367.84	2.56566
RhCl <sub>3</sub> .....	209.35	2.32088	SnO.....	135.0	2.13033
			SnO <sub>2</sub> .....	151.0	2.17898
S.....	32.06	1.50596	SnS.....	151.06	2.17915
S <sub>2</sub> .....	64.12	1.80699	SnS <sub>2</sub> .....	183.12	2.26274

Formula.	Formula Weight.		Formula.	Formula Weight.	
	Number.	Logarithm.		Number.	Logarithm.
Sr.....	87.6	1.94250	Tl <sub>2</sub> O.....	424.20	2.62757
SrCl <sub>2</sub> .....	158.5	2.20003	Tl <sub>2</sub> PtCl <sub>6</sub> .....	815.7	2.91153
SrCl <sub>2</sub> .6H <sub>2</sub> O....	266.6	2.42586	$\frac{1}{2}$ Tl <sub>2</sub> SO <sub>4</sub> .....	252.13	2.40162
SrCO <sub>3</sub> .....	147.6	2.16909	Tl <sub>2</sub> SO <sub>4</sub> .....	504.26	2.70265
$\frac{1}{2}$ Sr(HCO <sub>3</sub> ) <sub>2</sub> ....	104.81	2.02039	U.....	238.5	2.37749
Sr(HCO <sub>3</sub> ) <sub>2</sub> .....	209.62	2.32142	U <sub>2</sub> .....	477.0	2.67852
Sr(NO <sub>3</sub> ) <sub>2</sub> .....	211.68	2.32568	UO <sub>2</sub> .....	270.5	2.43217
SrO.....	103.6	2.01536	(UO <sub>2</sub> ) <sub>2</sub> .....	541.0	2.73320
Sr(OH) <sub>2</sub> .8H <sub>2</sub> O..	265.74	2.42445	$\frac{1}{2}$ U <sub>3</sub> O <sub>8</sub> .....	281.17	2.44897
SrSO <sub>4</sub> .....	183.66	2.26401	U <sub>3</sub> O <sub>8</sub> .....	843.5	2.92609
Ta.....	183	2.26245	UO <sub>2</sub> (C <sub>2</sub> H <sub>5</sub> O <sub>2</sub> ) <sub>2</sub> ..		
TaCl <sub>5</sub> .....	360.25	2.55660	2H <sub>2</sub> O.....	424.58	2.62796
(TaCl <sub>5</sub> ) <sub>2</sub> .....	720.50	2.85763	UO <sub>2</sub> (UO <sub>3</sub> ) <sub>2</sub> ..		
Ta <sub>2</sub> O <sub>4</sub> .....	430	2.63347	6H <sub>2</sub> O.....	502.68	2.70129
Ta <sub>2</sub> O <sub>5</sub> .....	446	2.64933	$\frac{1}{2}$ U <sub>2</sub> P <sub>2</sub> O <sub>11</sub> .....	357.5	2.55328
Te.....	127.6	2.10585	U <sub>2</sub> P <sub>2</sub> O <sub>11</sub> .....	715.0	2.85431
TeO <sub>2</sub> .....	159.6	2.20303	V.....	51.2	1.70927
TeO <sub>3</sub> .....	175.6	2.24452	VO <sub>4</sub> .....	115.2	2.06145
TeO <sub>3</sub> .3H <sub>2</sub> O....	229.65	2.36107	(VO <sub>4</sub> ) <sub>2</sub> .....	230.4	2.36248
Th.....	232.5	2.36642	V <sub>2</sub> O <sub>5</sub> .....	182.4	2.26102
ThCl <sub>4</sub> .....	374.30	2.57322	W.....	184	2.26482
Th(NO <sub>3</sub> ) <sub>4</sub> .6H <sub>2</sub> O	588.76	2.76993	WO <sub>2</sub> .....	216	2.33445
ThO <sub>2</sub> .....	264.5	2.42243	WO <sub>3</sub> .....	232	2.36549
Ti.....	48.1	1.68215	Yb.....	173	2.23805
TiO <sub>2</sub> .....	80.1	1.90363	Yb <sub>2</sub> O <sub>3</sub> .....	394	2.59550
Tl.....	204.1	2.30984	Yt.....	89	1.94939
Tl <sub>2</sub> .....	408.2	2.61087	Yt <sub>2</sub> O <sub>3</sub> .....	226	2.35411
TiCl <sub>3</sub> .....	239.55	2.37940	Zn.....	65.4	1.81558
(TiCl <sub>3</sub> ) <sub>2</sub> .....	479.10	2.68843	ZnCl <sub>2</sub> .....	136.3	2.13450
$\frac{1}{2}$ Tl <sub>2</sub> CO <sub>3</sub> .....	234.1	2.36940	ZnCO <sub>3</sub> .....	125.4	2.09830
Tl <sub>2</sub> CO <sub>3</sub> .....	468.2	2.67043	ZnO.....	81.4	1.91062
$\frac{1}{2}$ Tl <sub>2</sub> CrO <sub>4</sub> .....	262.15	2.41855	Zn <sub>2</sub> P <sub>2</sub> O <sub>7</sub> .....	304.8	2.48401
Tl <sub>2</sub> CrO <sub>4</sub> .....	524.30	2.71958	ZnS.....	97.46	1.98883
TiHSO <sub>4</sub> .....	301.17	2.47881	ZnSO <sub>4</sub> .....	161.46	2.20806
TiH.....	331.07	2.51992	ZnSO <sub>4</sub> .7H <sub>2</sub> O...	287.57	2.45875
(TiH) <sub>2</sub> .....	662.14	2.82095	Zr.....	90.6	1.95713
TiNO <sub>3</sub> .....	266.14	2.42506	ZrO <sub>2</sub> .....	122.6	2.08849
$\frac{1}{2}$ Tl <sub>2</sub> O.....	212.10	2.32654			

# CALCULATION OF VOLUMETRIC ANALYSES

## VIII. — BASICITY OF ACIDS WITH VARIOUS INDICATORS ACCORDING TO R. T. THOMPSON \*

The numbers indicate in each case the number of molecules of a univalent base, such as caustic soda, which will have combined with one molecule of the acid when the solution reacts neutral to the indicator given. Thompson divided indicators into three classes. Methyl orange is typical of the first class which also includes lacmoid, dimethyl amidobenzene, cochineal, iodeosine, and congo red. Phenolphthalein is typical of the second class which includes turmeric, curcuma, and flavescin. Litmus is typical of the third class, which includes rosolic acid, phenacetolin, fluorescein, gallein, and hematoxylin.

Acids.		Methyl Orange.	Phenolphthalein.		Litmus.	
Name.	Formula.	Cold.	Cold.	Boiling.	Cold.	Boiling.
Sulphuric.....	$\text{H}_2\text{SO}_4$	2	2	2	2	2
Hydrochloric.....	$\text{HCl}$	1	1	1	1	1
Nitric.....	$\text{HNO}_3$	1†	1	1	1	1
Thiosulphuric....	$\text{H}_2\text{S}_2\text{O}_3$	2	2	2	2	2
Carbonic.....	$\text{H}_2\text{CO}_3$	0	1 dilute	0	.....	0
Sulphurous.....	$\text{H}_2\text{SO}_3$	1	2	.....	.....	.....
Hydrosulphuric...	$\text{H}_2\text{S}$	0	1 dilute	0	.....	0
Phosphoric.....	$\text{H}_3\text{PO}_4$	1	2	.....	.....	.....
Arsenic.....	$\text{H}_3\text{AsO}_4$	1	2	.....	.....	.....
Arsenous.....	$\text{H}_3\text{AsO}_3$	0	.....	.....	0	0
Nitrous.....	$\text{HNO}_2$	†	1	.....	1	.....
Silicic.....	$\text{H}_4\text{SiO}_4$	0	.....	.....	0	0
Boric.....	$\text{H}_3\text{BO}_3$	0	.....	.....	.....	.....
Chromic.....	$\text{H}_2\text{CrO}_4$	1	2	2	.....	.....
Oxalic.....	$\text{H}_2\text{C}_2\text{O}_4$	.....	2	2	2	2
Acetic.....	$\text{HC}_2\text{H}_3\text{O}_2$	.....	1	.....	1 nearly	.....
Butyric.....	$\text{HC}_4\text{H}_7\text{O}_2$	.....	1	.....	1 nearly	.....
Succinic.....	$\text{H}_2\text{C}_4\text{H}_4\text{O}_4$	.....	2	.....	2 nearly	.....
Lactic.....	$\text{HC}_3\text{H}_5\text{O}_3$	.....	1	.....	1	.....
Tartaric.....	$\text{H}_2\text{C}_4\text{H}_4\text{O}_6$	.....	2	.....	2	.....
Citric.....	$\text{H}_3\text{C}_6\text{H}_5\text{O}_7$	.....	3	.....	.....	.....

\* C. N., 47, pp. 123, 185; 49, pp. 32, 119. J. S. C. I., 6, p. 195.

† Concentrated nitric acid sometimes contains oxides of nitrogen producing on dilution nitrous acid, which destroys methyl orange.



## IX.—VALUE OF NORMAL SOLUTIONS OF ACIDS AND BASES

In the following table the amount of each chemical compound which is equal to one c.c. of a normal solution is given. The indicator given in the last column or an indicator belonging to the same class, as given by Thompson, must be used. When no indicator is specified any one of the three classes of indicators may be used.

For fifth or tenth normal solutions or other strengths the number given in the table must be multiplied by  $\frac{1}{5}$  or  $\frac{1}{10}$  or the number expressing in terms of normal the strength of the solution used. If the amount of any chemical compound corresponding to 100 c.c. is weighed out and titrated with a normal solution the number of c.c. of solution used will be equal to the percentage of the constituent titrated. If a one tenth normal solution is used only one tenth of this amount need be weighed out.

Substance.	Formula.	Atomic or Molecular Weight.	Grams Neutralized by 1 c.c. Normal Solution.		Indi- cator. *
			Number.	Logarithm.	
Acetic acid.....	$\text{H}_3\text{C}_2\text{H}_3\text{O}_2$ ....	58.032	.05803	2.76367	P
Ammonia.....	$\text{NH}_3$ .....	17.064	.01706	2.23208	M., L.
Ammonium.....	$\text{NH}_4$ .....	18.072	.01807	2.25701	M., L.
chloride.....	$\text{NH}_4\text{Cl}$ .....	53.522	.05352	2.72854	M., L.
hydroxide.....	$\text{NH}_4\text{OH}$ .....	35.08	.03508	2.54506	M., L.
nitrate.....	$\text{NH}_4\text{NO}_3$ ....	80.112	.08011	2.90370	M., L.
sulphate.....	$(\text{NH}_4)_2\text{SO}_4$ ..	132.204	.06610	2.82021	M., L.
Barium.....	Ba.....	137.4	.06870	2.83696	.....
carbonate.....	$\text{BaCO}_3$ .....	197.4	.09870	2.99432	M.
chloride.....	$\text{BaCl}_2 \cdot 2\text{H}_2\text{O}$ ..	244.332	.12217	1.08695	.....
hydroxide.....	$\text{Ba}(\text{OH})_2$ ....	171.416	.08571	2.93302	.....
oxide.....	$\text{BaO}$ .....	153.4	.07670	2.88480	.....
Boric acid.....	$\text{H}_3\text{BO}_3$ .....	62.024	.06202	2.79256	P.
Calcium.....	Ca.....	40.1	.02005	2.30211	.....
carbonate.....	$\text{CaCO}_3$ .....	100.1	.05005	2.69940	M.
chloride.....	$\text{CaCl}_2$ .....	111.0	.05550	2.74429	.....
chloride.....	$\text{CaCl}_2 \cdot 6\text{H}_2\text{O}$ ..	219.096	.10955	1.03960	.....
hydroxide.....	$\text{Ca}(\text{OH})_2$ ....	74.116	.03706	2.56889	.....
oxide.....	$\text{CaO}$ .....	56.1	.02805	2.44793	.....
Carbon dioxide.....	$\text{CO}_2$ .....	44.00	.04400	2.64345	P.
Citric acid.....	$\text{H}_3\text{C}_6\text{H}_5\text{O}_7$ ....	192.064	.06402	2.80633	.....
Hydrobromic acid.....	$\text{HBr}$ .....	80.968	.08097	2.90831	.....
Hydrochloric acid.....	$\text{HCl}$ .....	36.458	.03646	2.56180	.....

\* M. = Methyl orange; L. = Litmus; P. = Phenolphthalein.

Substance.	Formula.	Molecular or Atomic Weight.	Grams Neutralised by 1 c.c. Normal Solution.		Indicator.
			Number.	Logarithm.	
Hydroiodic acid.....	HI.....	127.98	.01280	2.10713	.....
Lactic acid.....	$\text{H.C}_3\text{H}_5\text{O}_3$ .....	90.048	.09005	2.95447	P.
Lead.....	Pb.....	206.9	.10345	1.01473	.....
carbonate.....	$\text{PbCO}_3$ .....	266.9	.13345	1.12532	M.
oxide.....	$\text{PbO}$ .....	222.9	.11145	1.04708	.....
Magnesium.....	Mg.....	24.36	.01218	2.08565	M.
carbonate.....	$\text{MgCO}_3$ .....	84.36	.04218	2.62511	M.
chloride.....	$\text{MgCl}_2$ .....	95.26	.04763	2.67788	M.
oxide.....	$\text{MgO}$ .....	40.36	.02018	2.30492	M.
Nitric acid.....	$\text{HNO}_3$ .....	63.048	.06305	2.79968	.....
oxide.....	$\text{N}_2\text{O}_5$ .....	108.08	.05404	2.73272	.....
Nitrous acid.....	$\text{HNO}_2$ .....	47.048	.04705	2.67254	P.
Nitrogen.....	N.....	14.04	.01404	2.14737	.....
Oxalic acid.....	$\text{H}_2\text{C}_2\text{O}_4$ .....	90.016	.04501	2.65329	.....
"      ".....	$\text{H}_2\text{C}_2\text{O}_4 \cdot 2\text{H}_2\text{O}$ .....	126.048	.06302	2.79951	.....
Phosphoric acid.....	$\text{H}_3\text{PO}_4$ .....	98.024	.09802	2.99133	M.
"      ".....	$\text{H}_3\text{PO}_4$ .....	98.024	.04901	2.69030	P.
Potassium.....	K.....	39.15	.03915	2.59273	.....
bicarbonate.....	$\text{KHCO}_3$ .....	100.158	.10016	1.00067	M.
bitartrate.....	$\text{KHC}_4\text{H}_4\text{O}_6$ .....	188.19	.18819	1.27450	P.
carbonate.....	$\text{K}_2\text{CO}_3$ .....	138.30	.06915	2.83979	M.
dichromate.....	$\text{K}_2\text{Cr}_2\text{O}_7$ .....	294.5	.14725	1.16806	P.
hydroxide.....	$\text{KOH}$ .....	56.158	.05616	2.74941	.....
oxide.....	$\text{K}_2\text{O}$ .....	94.3	.04715	2.67348	.....
tartrate.....	$\text{K}_2\text{C}_4\text{H}_4\text{O}_6$ .....	226.332	.11317	1.04371	.....
tetroxalate.....	$\text{KH}_3(\text{C}_2\text{O}_4)_2$ .....	254.21	.08474	2.93807	.....
Sodium.....	$\text{Na} \dots [2\text{H}_2\text{O}]$ .....	23.05	.02305	2.36267	.....
bicarbonate.....	$\text{NaHCO}_3$ .....	84.058	.08406	2.92458	M.
carbonate.....	$\text{Na}_2\text{CO}_3$ .....	106.1	.05305	2.72469	M.
diphosphate.....	$\text{Na}_2\text{HPO}_4$ .....	142.108	.14211	1.15261	P.
"      ".....	$\text{Na}_2\text{HPO}_4$ .....	358.3	.35830	1.55425	P.
hydroxide.....	$\text{NaOH} \cdot [12\text{H}_2\text{O}]$ .....	40.058	.04006	2.60269	.....
oxide.....	$\text{Na}_2\text{O}$ .....	62.1	.03105	2.49206	.....
tetraborate.....	$\text{Na}_2\text{B}_4\text{O}_7$ .....	202.10	.10105	1.00454	P.
"      ".....	$\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$ .....	382.26	.19113	1.28133	P.
triphosphate.....	$\text{Na}_3\text{PO}_4$ .....	164.15	.16415	1.21524	M.
"      ".....	$\text{Na}_3\text{PO}_4$ .....	164.15	.08208	2.91421	P.
Sulphur trioxide.....	$\text{SO}_3$ .....	80.06	.04003	2.60239	.....
Sulphuric acid.....	$\text{H}_2\text{SO}_4$ .....	98.076	.04904	2.69053	.....
Tartaric acid.....	$\text{H}_2\text{C}_4\text{H}_4\text{O}_6$ .....	150.048	.07502	2.87520	P.

# X.—VALUE OF NORMAL SOLUTIONS OF OXIDIZING AND REDUCING AGENTS

Substance Titrated.		Atomic or Molecular Weight.	1 c.c. of Normal Solution is Equal to Grams.	
Name.	Formula.		Number.	Logarithm.
Ammonium oxalate.....	$(\text{NH}_4)_2\text{C}_2\text{O}_4$ .....	124.144	.06272	2.79741
Antimony.....	Sb.....	120.2	.06010	2.77887
Arsenic.....	As.....	75.0	.0375	2.57403
Arsenous acid.....	$\text{H}_3\text{AsO}_3$ .....	126.024	.06301	2.79942
oxide.....	$\text{As}_2\text{O}_3$ .....	198.0	.0495	2.69461
sulphide.....	$\text{As}_2\text{S}_3$ .....	246.18	.06154	2.78920
Barium peroxide.....	$\text{BaO}_2$ .....	169.4	.0847	2.92788
peroxide.....	$\text{BaO}_2 \cdot 8\text{H}_2\text{O}$ .....	313.53	.15676	1.19524
thiosulphate.....	$\text{BaS}_2\text{O}_3 \cdot \text{H}_2\text{O}$ .....	267.54	.26754	1.42739
Bleaching powder.....	$\text{CaOCl}_2$ .....	127.0	.0635	2.80277
Bromine.....	Br.....	79.96	.07996	2.90287
Calcium.....	Ca.....	40.1	.02005	2.30211
carbonate.....	$\text{CaCO}_3$ .....	100.1	.05005	2.69940
oxide.....	CaO.....	56.1	.02805	2.44793
Chlorine.....	Cl.....	35.45	.03545	2.54962
Chromic anhydride.....	$\text{CrO}_3$ .....	100.1	.03337	2.52336
oxide.....	$\text{Cr}_2\text{O}_3$ .....	152.2	.02537	2.40432
Copper.....	Cu.....	63.6	.0636	2.80346
oxide.....	CuO.....	79.6	.0796	2.90091
sulphate.....	$\text{CuSO}_4$ .....	159.66	.15966	1.20319
".....	$\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ .....	249.74	.24974	1.39749
Ferric oxide.....	$\text{Fe}_2\text{O}_3$ .....	159.8	.0799	2.90255
Ferrous oxide.....	FeO.....	71.9	.0719	2.85673
sulphate.....	$\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$ .....	278.072	.27807	1.44415
ammonium sulphate...	$\text{FeSO}_4(\text{NH}_4)_2\text{SO}_4 \cdot 6\text{H}_2\text{O}$ .....	392.26	.39226	1.59358
Hydrogen peroxide.....	$\text{H}_2\text{O}_2$ .....	34.016	.01701	2.23065
Hydrogen sulphide.....	$\text{H}_2\text{S}$ .....	34.076	.01704	2.23142
Iodine.....	I.....	126.97	.12697	1.10370
Iron.....	Fe.....	55.9	.0559	2.74741
Lead peroxide.....	$\text{PbO}_2$ .....	238.9	.11945	1.07719
Manganese peroxide.....	$\text{MnO}_2$ .....	87.0	.0435	2.63849
Nitrous acid.....	$\text{HNO}_2$ .....	47.048	.04705	2.67254
Oxalic acid.....	$\text{H}_2\text{C}_2\text{O}_4$ .....	90.016	.04501	2.65329
".....	$\text{H}_2\text{C}_2\text{O}_4 \cdot 2\text{H}_2\text{O}$ .....	126.048	.06302	2.79951

Substance Titrated.		Atomic or Molecular Weight.	r c.c. of Normal Solution is Equal to Grams.	
Name.	Formula.		Number.	Logarithm.
Potassium acid iodate....	$\text{KH}(\text{IO}_3)_2$ .....	390.098	.03250	2.51199
chlorate.....	$\text{KClO}_3$ .....	122.60	.02043	2.31033
chromate.....	$\text{K}_2\text{CrO}_4$ .....	194.4	.0648	2.81158
dichromate.....	$\text{K}_2\text{Cr}_2\text{O}_7$ .....	294.5	.04908	2.69093
ferrocyanide.....	$\text{K}_4\text{Fe}(\text{CN})_6$ .....	368.74	.36874	1.56672
“      cryst.....	$\text{K}_4\text{Fe}(\text{CN})_6 \cdot 3\text{H}_2\text{O}$	422.79	.4228	1.62613
iodate.....	$\text{KIO}_3$ .....	214.12	.03569	2.55251
nitrite.....	$\text{KNO}_2$ .....	85.19	.08519	2.93039
perchlorate.....	$\text{KClO}_4$ .....	138.60	.01733	2.23868
permanganate.....	$\text{KMnO}_4$ .....	158.15	.03163	2.50010
tetroxalate.....	$\text{KH}_2(\text{C}_2\text{O}_4)_2 \cdot 2\text{H}_2\text{O}$	254.21	.06355	2.80314
Sodium chlorate.....	$\text{NaClO}_3$ .....	122.50	.02042	2.30999
ferrocyanide.....	$\text{Na}_4\text{Fe}(\text{CN})_6$ .....	304.34	.30434	1.48336
thiosulphate.....	$\text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O}$ ....	248.30	.24830	1.39498
Stannous chloride.....	$\text{SnCl}_2$ .....	189.90	.09495	2.97749
“.....	$\text{SnCl}_2 \cdot 2\text{H}_2\text{O}$ .....	225.932	.11297	1.05294
Tin.....	$\text{Sn}$ .....	119.0	.0595	2.77452

# XI. — VALUE OF NORMAL SOLUTIONS OF PRECIPITATION REAGENTS

Substance Titrated.		Atomic or Molecular Weight.	1 c.c. of Normal Solution is Equal to Grams.	
Name.	Formula.		Number.	Logarithm.
<b>Ammonium</b>				
sulphocyanate.....	NH <sub>4</sub> CNS.....	76.17	.07617	2.88178
<b>Arsenic acid</b> .....	H <sub>3</sub> AsO <sub>4</sub> .....	142.02	.04734	2.67523
oxide.....	As <sub>2</sub> O <sub>5</sub> .....	230.0	.03833	2.58354
<b>Arsenous acid</b> .....	H <sub>3</sub> AsO <sub>3</sub> .....	126.02	.04201	2.62335
oxide.....	As <sub>2</sub> O <sub>3</sub> .....	198.0	.03300	2.51851
<b>Bromine</b> .....	Br.....	79.96	.07996	2.90287
<b>Carbon dioxide</b> .....	CO <sub>2</sub> .....	44.00	.02200	2.34242
<b>Chlorine</b> .....	Cl.....	35.45	.03545	2.54962
<b>Copper</b> .....	Cu.....	63.6	.0636	2.80346
oxide.....	CuO.....	79.6	.07960	2.90001
sulphate.....	CuSO <sub>4</sub> .....	159.66	.15966	1.20319
".....	CuSO <sub>4</sub> .5H <sub>2</sub> O.....	249.74	.24974	1.39749
<b>Cyanogen</b> .....	CN.....	26.04	.02604	2.41564
<b>Hydrobromic acid</b> .....	HBr.....	80.968	.08097	2.90832
<b>Hydrochloric acid</b> .....	HCl.....	36.458	.03646	2.56182
<b>Hydrocyanic acid</b> .....	HCN.....	27.048	.02705	2.43217
<b>Hydroiodic acid</b> .....	HI.....	127.98	.12800	1.10721
<b>Iodine</b> .....	I.....	126.97	.12700	1.10380
<b>Potassium bromide</b> .....	KBr.....	119.11	.11911	1.07595
chloride.....	KCl.....	74.60	.07460	2.87274
cyanide.....	KCN.....	65.19	.06519	2.81418
iodide.....	KI.....	166.12	.16612	1.22042
sulphide.....	K <sub>2</sub> S.....	110.36	.05518	2.74178
sulphocyanate.....	KCNS.....	97.25	.09725	2.98789
<b>Silver</b> .....	Ag.....	107.93	.10793	1.03314
nitrate.....	AgNO <sub>3</sub> .....	169.97	.16997	1.23037
<b>Sodium bromide</b> .....	NaBr.....	103.01	.10301	1.01288
chloride.....	NaCl.....	58.50	.05850	2.76716
cyanide.....	NaCN.....	49.09	.04909	2.69099
iodide.....	NaI.....	150.02	.15002	1.17615
sulphide.....	Na <sub>2</sub> S.....	78.16	.03908	2.59195
<b>Zinc</b> .....	Zn.....	65.4	.0327	2.51455
oxide.....	ZnO.....	81.4	.0407	2.60959
sulphate.....	ZnSO <sub>4</sub> .....	161.46	.08073	2.90703
".....	ZnSO <sub>4</sub> .7H <sub>2</sub> O.....	287.57	.14378	1.15770

# XII.—PHYSICAL AND CHEMICAL CONSTANTS OF OILS

By ALBERT F. SEEKER

Name.	°C.	Specific Gravity.	Solidifying Point, °C.	Behner Value.
Almond	15°	0.9175-0.9195	-10 to -20	96.2
Beech nut	15°	0.9200-0.9225	-17	95.2
Black Mustard	15°	0.916-0.920	-17	95.1
Candlenut	15.5°	0.9256		95.5
Castor	15.5°	0.9600-0.9679	-10 to -18	
Cherry Laurel	15°	0.9230	-19 to -20	
Cocanut	40°	0.9115	22-14	88.6-90
Cod liver	15°	0.9210-0.9280	0 to -10	95.3
Corn (Maize)	15.5°	0.9213-0.9250		93-96
Cottonseed	15°	0.9220-0.9250		95-96
Croton	15°	0.9500	-16	89.0
Fir seed	15°	0.9215-0.9250	-18 to -20	
Grape seed	15°	0.9350	-10 to -13	92
Hazel nut	15°	0.9146-0.9170	-17	95.6
Hemp seed	15°	0.9255-0.9280	-27	
Herring	15.5°	0.9202-0.9390		95.6
Lard oil	15.5°	0.9148-0.9175		
Linseed	15°	0.9315-0.9345	-27	95.5
Menhaden	15.5°	0.927-0.933	-4	
Neat's foot	15°	0.9133-0.9160	0 to 1.5	
Olive	15.5°	0.9155-0.9180	-6 to 2	95
Olive kernel	15°	0.9184-0.9191		
Palm	15°	0.9210-0.9245		95
Palm nut	15°	0.9520	20.5	87.6-91.1
Peach kernel	15°	0.9180-0.9215	below -20	
Peanut (Arachis)	15.5°	0.9110-0.9220	-3 to 0	95.8
Poppy seed	15.5°	0.9240-0.9370	-18	95.2
Porpoise (body oil)	15°	0.9258-0.9350	-16	85.5
Porpoise (jaw oil)	15°	0.9258		70.2
Pumpkin seed	15°	0.9237	-15.5	96.2
Rape (Colza)	15.5°	0.9132-0.9168	-2 to -10	95.1
Safflower (Saffron)	15.5°	0.9251-0.9280		95.4
Sardine	15°	0.9274-0.9330		94.5
Seal	15°	0.9155-0.9263	-2 to -3	95.45
Sesame	15.5°	0.9225-0.9244	-5	95.7
Shark liver (Arctic)	15°	0.9163-0.9290		86.9
Sperm oil	15°	0.8781-0.8835	15.5	
Sperm oil, Arctic (Bottle)	15°	0.8764		
Sunflower	15°	0.9240-0.9258	-18.5	95.0
Tung (Chinese Wood oil)	15°	0.9360-0.9432	below -17	96.2
Walnut (Nut)	15°	0.9250-0.9260	-27.5	95.4
Whale	15.5°	0.9250	below -2	93.5
White Mustard	15.5°	0.914-0.916	-8 to -16	96.2

Name.	Saponifica- tion Value.	Iodine Value.	Maumens Number.	°C.	Refractive Index.
Almond.....	191	86-97	45-52.5	60	1.4555
Beech nut.....	191-196	104-111	64	.....	.....
Black mustard.....	174	96-110	43	40	1.4649-1.4656
Candlenut.....	192.6	163.7	.....	15	1.4759
Castor.....	183-186	83-88.5	46-47	15	1.4799
Cherry laurel.....	194	108.9	44.5	.....	.....
Cocanut.....	246-260	8-12	21	40	1.4481
Cod liver.....	171-189	135-168	102-113	15	1.4800-1.4852
Corn (Maize).....	188-193	113-125	74-89	15.5	1.4760-1.4768
Cottonseed.....	193-195	108-110	75-90	15.5	1.4737-1.4757
Croton.....	210-215	102-104	.....	27	1.4468
Fir seed.....	191.3	119.5	98.5	.....	.....
Grape seed.....	178.5	96	53	.....	.....
Hazel nut.....	192	83-90	36	.....	.....
Hemp seed.....	192.5	148	97	.....	.....
Herring.....	167-194	123.5	.....	.....	.....
Lard oil.....	195-198	69-80	33-47	15.5	1.4702-1.4720
Linseed.....	192-195	171-201	110-126	15	1.4820-1.4852
Menhaden.....	190.6	139-173	.....	.....	.....
Neat's foot.....	194.3	69.3-73.2	47-48.5	15	1.4695-1.4708
Olive.....	189-194.6	77.5-89.8	38-52	15.5	1.4703-1.4718
Olive kernel.....	183	87.4	.....	25	1.4682
Palm.....	196-202	51.5	.....	60	1.4510
Palm nut.....	242-250	13-14	.....	60	1.4431
Peach kernel.....	192.5	93-109	42.5	25	1.4697-1.4705
Peanut (Arachis).....	189-196	83-105	44.67	15.5	1.4707-1.4731
Poppy seed.....	195	133-157.5	71-88	15.5	1.4766-1.4774
Porpoise (body oil).....	195-224.8	110-120	50	25	1.4677
Porpoise (jaw oil).....	254-272	22-50	.....	.....	.....
Pumpkin seed.....	188.4	123-130	.....	25	1.4724-1.4738
Rape (Colza).....	170-179	93-104	50-67	15.5	1.4720-1.4752
Safflower (Saffron).....	186.6-193	129.8-150	.....	40	1.4693
Sardine.....	189-193	160-193	.....	.....	.....
Seal.....	189-196	127-111	.....	.....	.....
Sesame.....	188-193	103-114	61-68.5	15.5	1.4748-1.4762
Shark liver (Arctic).....	161-188.5	114-143.5	.....	.....	.....
Sperm oil.....[nose]	125.2-143	70-90	51	15.5	1.4665-1.4672
Sperm oil, Arctic (Bottle).....	123-135.9	67-82.1	41-47	.....	.....
Sunflower.....	193.5	119-135	60-75	25	1.4736
Tung (Chinese Wood oil).....	193	150-165	.....	19	1.503
Walnut (Nut).....	195	145	103	40	1.4690
Whale.....	188	121-136	.....	25	1.4723
White Mustard.....	170-174	92-97	44-49	40	1.4649

Name.	Acid Value.	% Unsaponifiable Matter.	Other Values.
Almond.....	1.5	.....	.....
Black mustard.....	1.36-7.35	.....	.....
Candlenut.....	8.1	0.76	.....
Castor.....	0.14-14.61	.....	Acl. V. 153-156*
Cocanut.....	5-50	.....	R.M. 6.8-8.4
Cod liver.....	0.36-25	0.54-9.87	Acl. V. 4-8
Corn (Maize).....	1.7-20.6	1.35-2.86	.....
Cottonseed.....	0.0	0.73-1.64	Acl. V. 7.6-18
Croton.....	.....	0.55	R.M. 12-13.6
Grape seed.....	16.2	.....	Acl. V. 144.5
Hazel nut.....	.....	0.5	.....
Hemp seed.....	.....	1.08	.....
Herring.....	1.8-44	0.99-10.7	.....
Lard oil.....	.....	.....	.....
Linseed.....	0.8-8.4	0.42-1.9	.....
Menhaden.....	3-11.6	1.6-6.7	.....
Neat's foot.....	.....	.....	Acl. V. 22.0
Olive.....	1.9-50	0.46-1.0	.....
Olive kernel.....	2-3.5	.....	.....
Palm.....	24-200	.....	.....
Palm nut.....	8.4	.....	.....
Peanut (Arachis).....	1.2-32	0.54-0.94	.....
Poppy seed.....	0.7-11.0	0.43	.....
Porpoise (body oil).....	1.2	3.7	R. No. 23.5
Porpoise (jaw oil).....	5.0	16.4	R. No. 47.8-65.8
Rape (Colza).....	1.4-13.2	0.58-1.0	.....
Safflower (Saffron).....	0.33-20	.....	Acl. V. 16.1
Sardine.....	4-25	0.5-1.4	.....
Seal.....	1.9-40	0.38-1.4	Acl. V. 33-34
Sesame.....	0.2-46	0.95-1.32	.....
Shark liver (Arctic).....	3-7	5.46-10.2	.....
Sperm oil.....	13.2	37-41	M. Pt. { 25.5-25.7 23.5-26.5
Sperm oil, Arctic (Bottle-nose).....	.....	31.7-42.6	
Sunflower.....	11.2	0.31	.....
Tung (Chinese Wood oil).....	7.6-12	0.44	.....
Whale.....	0.5-37	0.92-3.72	†Acl. V. 11.6-17.2
White Mustard.....	5.4	.....	.....

\* Polarizes (200 mm.) +21.9 to +28°V.

† Old oil has acetyl value at 23.

Acl. v. = Acetyl Value.

R.M. = Reichert-Meissl Value.

R. No. = Reichert Value.

M. Pt. = Melting Point.



Name.	Mixed Fatty Acids.			
	Melting Point, °C.	Acid Value.	Iodine Value.	Other Values.
Almond.....	13-14	204	93-96.5	R.I. (60°) 1.4461
Beech nut.....	23-24	.....	114	.....
Black mustard.....	16	187.1	109.6	.....
Candlenut.....	20-21	.....	.....	.....
Castor.....	13	192.1	87-93	R.I. (60°) 1.4546
Cherry Laurel.....	20-22	.....	112.1	.....
Cocoanut.....	25-27	258-266	8.4-9.3	R.I. (60°) 1.4295
Cod liver.....	21-25	204-207	130.5-170	R.I. (60°) 1.4521
Corn (Maize).....	18-20	198.4	119.5	.....
Cottonseed.....	35-38	202-208	111-115	R.I. (60°) 1.4460
Croton.....	.....	201	111.5	S.P. 16.7° C.
Fir seed.....	16-19	.....	121.5	.....
Grape seed.....	24	187.4	99	.....
Hazel nut.....	22-24	200.6	91.3-97.6	.....
Hemp seed.....	18-19	.....	141	.....
Herring.....	.....	178.5	.....	.....
Lard oil.....	33.2-38.4	.....	.....	.....
Linseed.....	17-21	197	179-182	R.I. (60°) 1.4546
Neat's foot.....	29.8-30.8	.....	61.9-63.3	.....
Olive.....	19.2-31.0	193	86-90	R.I. (60°) 1.4410
Palm.....	47-50	205.6	53.3	Titer 36-45.5
Palm nut.....	25-28.5	258-264	12.0	R.I. (60°) 1.4310
Peach kernel.....	10-18	200.9	94-101	.....
Peanut (Arachis).....	26-36.4	201.6	96-103	R.I. (60°) 1.4461
Poppy seed.....	20-25.8	199	139	R.I. (60°) 1.4506
Porpoise (body oil).....	.....	207	126	R.I. (25°) 1.4622
Pumpkin seed.....	28-29	197	133.6	.....
Rape (Colza).....	16-19	185	99-103	R.I. (60°) 1.4991
Safflower (Saffron).....	.....	.....	.....	Titer 16° C.
Sardine.....	.....	177-185	.....	.....
Seal.....	22-33	193.2	.....	.....
Sesame.....	26-32	200.4	110.5	R.I. (60°) 1.4461
Sperm oil..... [nose]	13.3	23.6	83.2-85.6	F.A. 60-64%
Sperm oil, Arctic (Bottle-)	10.3-10.8	.....	82.7	F.A. 61-65%
Sunflower.....	22-24	201.6	124-134	R.I. (60°) 1.4531
Tung (Chinese Wood oil)...	31-43.8	188.8	144-159	.....
Walnut (Nut).....	16-18	200.2	150	.....
Whale.....	27.0	.....	131.2	.....
White Mustard.....	15-16	185.8	95.3	.....

R.I. = Refractive Index. S.P. = Solidifying Point. F.A. = Fatty Acids.

# XIII.—PHYSICAL AND CHEMICAL CONSTANTS OF FATS AND WAXES

BY ALBERT F. SEEKER

Name.	°C.	Specific Gravity.	Solidifying Point, °C.	Behner Value.	Saponification Value.
Beef marrow.....	15	0.9311-0.9380	31-29	.....	199
Beef tallow.....	15	0.943-0.952	27-35	95.6	193.2-200
Beeswax.....	15	0.964-0.970	60.5-62.8	.....	90-102
Bone fat.....	15	0.914-0.916	15-17	.....	190.9
Butter fat.....	15	0.926-0.940	20-23	86.5-89.8	227
Carnaüba wax.....	15	0.990-0.999	80-81	.....	79-95
Chicken fat.....	15	0.9241	21-27	.....	193.5
Chinese wax (insect wax)	15	0.926-0.970	80.5-81	.....	805-93
Cocoa butter.....	15	0.9500-0.9760	21.5-23	94.6	193.5
Cottonseed Stearine....	15	0.9188-0.9230	16-22	95.9	195
Dog fat.....	15	0.9229	21-23	65-95	195.4
Goose (domestic).....	15	0.9274	18-20	95	193.1
Goose (wild).....	15	0.9158	18-20	.....	196
Hare fat.....	15	0.9349	17-23	95.4	200.9
Horse fat.....	15	0.9189	30-43	95-96	195-197
Human fat.....	25	0.9033	15	.....	195
Japan wax.....	15	0.9700-0.9800	48.5-53	90.6	217-237.5
Lard.....	15.5	0.934-0.938	27.1-29.9	93-96	195.4
Laurel oil.....	15	0.9332	25	.....	197.9
Mutton tallow.....	15	0.937-0.952	27-35	95.5	192-195.2
Myrtle wax.....	15	0.995	39-43	.....	208.7
Nutmeg butter (mace butter)	15	0.945-0.996	41-42	.....	154-191
Rabbit fat (tame).....	15	0.9342	22-24	95.5	202.6
Rabbit fat (wild).....	15	0.9393	17-22	.....	199.3
Spermaceti.....	15	0.905-0.960	42-47	.....	123-135
Vegetable tallow (Chin.)	15	0.9180	27-31	.....	200.3
Wool fat.....	17	0.9413-0.9449	30-30.2	.....	102.4

### XIII. — PHYSICAL AND CHEMICAL CONSTANTS OF FATS AND WAXES—(Continued)

Name.	Iodine Value.	° C.	Refractive Index.	Acid Value.	% Unsaponifiable Matter.
Beef marrow.....	55.4	..	.....	1.6	.....
Beef tallow.....	38-46	40	1.4586	3.5-50	.....
Beeswax.....	7.9-13.8	65	1.4448-1.4463	16.8-21.2	52-55*
Bone fat.....	46-55.8	..	.....	29.6-53	0.5-1.8
Butter fat.....	26-38	25	1.4590-1.4620	0.45-35.4	0.33-.56
Carnaüba wax.....	13.5	84	1.4520-1.4541	4-7	55*
Chicken fat.....	66.7	..	.....	1.2	.....
Chinese wax (Insect wax)	1.4	..	.....	traces	.....
Cocoa butter.....	32-41	60	1.4496	1.1-1.88	.....
Cottonseed Stearine.....	90-103	..	.....	.....	.....
Dog fat.....	58.5	..	.....	1.79	.....
Goose (domestic).....	67-71	40	1.4593-1.4596	0.59	.....
Goose (wild).....	99.6	..	.....	0.86	.....
Hare fat.....	102.2	40	1.4586	2.73	.....
Horse fat.....	71-86	40	1.4617	0.0-2.44	.....
Human fat.....	61.5	..	.....	.....	.....
Japan wax.....	4.9-10.6	65	1.4477-1.4492	7.33	1.1-1.63
Lard.....	50-70	40	1.4584-1.4601	0.54-1.28	0.23
Laurel oil.....	68-80	..	.....	26.3	.....
Mutton tallow.....	35-46	60	1.4510	1.7-14.0	.....
Myrtle wax.....	10.7	..	.....	3-4.4	.....
Nutmeg butter (Mace butter)	40-52	40	1.4579-1.4812	17-44.8	.....
Rabbit fat (tame).....	67.6	40	1.4586	6.2	.....
Rabbit fat (wild).....	99.8	..	.....	7.2	.....
Spermaceti.....	3.8-9.5†	..	.....	0.5-1.35†	51.5*
Vegetable tallow(Chinese)	28-37	..	.....	2.2-7.5	.....
Wool fat.....	17.1-35.3	..	.....	.....	43.1-51.8*

\* Plus Alcohols.

† Commercial Samples.

# XIII. — PHYSICAL AND CHEMICAL CONSTANTS OF FATS AND WAXES—(Concluded)

Name.	Other Values.	Mixed Fatty Acids.			
		Melting Point, °C.	Acid Value.	Iodine Value.	Other Values.
Beef marrow.....		44-46	204.5	55.5	.....[46.2
Beef tallow.....		43-44	197.2	41.3	Titer 37.9-
Beeswax.....	{ E.V. 72-78. R.V.3.5-4.2				
Bone fat.....	Acl. V. 11.3	30	200	55.7-57.4	.....
Butter fat.....	R.M. 20.63-33.15	38-40	210-220	28-31	R.I. (60°) 1.437
Chicken fat.....	R. No. 1.0	38-40	200.8	64.6	.....
Cocoa butter.....	M. Pt. 28-33	48-50	190	33-39	{ R.I. (60°) 1.4220
Cottonseed Stearine.....		27-30		94	Titer 35.1
Dog fat.....		39-40.5	199.2	50.2	.....
Goose (domestic) ...	R. No. 0.98	38-40	202.4	65.3	.....
Goose (wild).....	R.M. 0.2-0.3	34-40	196.4	65.1	.....
Hare fat.....	R. No. 1.59	44-47	209.0	93.3	{ R.I. (40°) 1.4495
Horse fat.....		37.5-39.5	202.6	84-87	Titer 33.7
Human fat.....	[31.2	35.5		64	.....
Japan wax.....	Acl. V. 27-	56-62	213.7		.....
Lard.....	Acl. V. 2.6	43-44	201.8	64	{ R.I. (60°) 1.4395
Laurel oil.....	R. No. 1.6			81.8	Titer 15.1
Mutton tallow.....		49-50	210	34.8	Titer 40.15; 48.02
Myrtle wax. [butter).....		47.5	230.9		.....
Nutmeg butter (Mace	R.M.1-4.2	42.5			Titer 35.9
Rabbit fat (tame)...	R. No. 2.8	40-42	218.1	64.4	{ R.I. (40°) 1.4495
Rabbit fat (wild) ...	R. No. 0.7	39-41	209.5	101.1	.....
Spermaceti.....	Acl. V. 2.63				.....
Vegetable tallow (Chinese)		53-57	182-208	30-39	.....
Wool fat.....	Acl. V. 23.3	41.8		17	.....

E.V. = Ether Value = Saponification Value minus Acid Value.

R.V. = Ratio Value = Ether Value divided by Acid Value.

Acl. V. = Acetyl Value.

R.M. = Reichert — Meissl Value.

R. No. = Reichert Value.

M. Pt. = Melting Point.

R.I. = Refractive Index. 60

# XIV.—PHYSICAL CONSTANTS OF LUBRICATING OILS

LEWKOWITSCH

Oil.	Specific Gravity.	Viscosity by Redwood's Viscometer. Standard for Viscosity; Sperm Oil at 70° C.=100.			Flash Point. Close Test.	Cold Test.
		60° F.	70° F.	120° F.	°F.	°F.
Refined Mineral Oils						
Scotch .....	0.890-0.895	100-130	40-50	320-350	32	
Scotch .....	0.885-0.890	75-100	35-40	300-325	32	
Scotch .....	0.875-0.880	50-60	25-30	300-325	32	
American .....	0.915-0.920	400-425	90-100	375-425	32	
American .....	0.905-0.910	200-225	55-65	350-400	32	
American .....	0.885-0.890	75-100	35-40	325-350	32	
American .....	0.875-0.880	65-75	30-35	325-350	32	
Russian .....	0.910-0.915	1200-1500	200-250	400-425	25	
Russian .....	0.905-0.912	700-800	125-150	350-375	25	
Russian .....	0.895-0.900	220-250	60-65	325-350	15	
Russian .....	0.895-0.900	125-175		300-325	10	
Southern Sperm Oil .....	0.8807	100.1	45.4	457.5	41.7	
Arctic Sperm Oil .....	0.8804	105.3	47.2	446.2	39.2	
White Whale Oil .....	0.9207	187.7	71.3	476.0	27.2	
Neat's Foot Oil .....	0.9178	247	82.4	470.3	34.4	
Lard Oil .....	0.9172	223.2	79.4	493.9	39.6	
Olive Oil .....	0.9167	213.2	75.0	437.5	27	
Rape Oil, East India, refined ..	0.916	250.4	88.1	478.6	26.4	
Rape Oil, Black Sea, refined ..	0.9209	226.9	78.8	465.4	27	
Cottonseed Oil, refined .....	0.9235	190.4	69.8	523	30	
Castor Oil .....	0.963	2500	390	487	0	

# XV.—PHYSICAL AND CHEMICAL CONSTANTS OF REPRESENTATIVE SAMPLES OF LUBRICATING OILS

By ALBERT F. SEEKER

Name.	Sp. Gr. 60° F.	Flash Test °F.	Fire Test °F.	Cold Test °F.	Saponifi- able Matter.*	Ash. %	Acidity or Alkalini- ity.	Other Tests.
Air Compressor Oil.....	0.8857	455	525	25	trace	none	neutral	No rosin oil. Vis. 261.7.§
Air Compressor Oil.....	0.8654	410	460	-2	none	none	neutral	No rosin oil.
Car Oil.....	0.8824	354	400	5	none	none	neutral	T. S. M. 1%.†
Cutting Oil.....	0.9036	345	425	31	82.9%	none	3.16%	Mixture lard and min. oils. Vis. 8.6§
Cylinder Oil.....	0.8921	535	600†	60	20%	trace	neutral	T. S. M. less than 5%.
Cylinder Oil.....	0.9020	545	600†	31	2.4%	none	neutral	T. S. M. trace. Vol. 1.43%.‡
Cylinder Oil.....	0.8993	590	600†	....	none	0.06%	neutral	T. S. M. none. Vol. 9.74%.‡
Cylinder Oil.....	0.8992	555	600†	....	none	0.08%	neutral	T. S. M. 2%. Vol. 9.12%.‡
Engine Oil.....	0.9163	430	480	27	1.5%	trace	neutral	No rosin oil. Vis. 28.4.§
Engine Oil.....	0.8945	360	415	5	10%	none	0.05%	T. S. M. none.

Name.	Sp. Gr. 60° F.	Flash Test ° F.	Fire Test ° F.	Cold Test ° F.	Saponi- fiable Matter.*	Ash.	Acidity or Alkalinity.	Other Tests.
Engine Oil .....	0.8970	400	465	3	none	none	neutral	T. S. M. none. No rosin oil.
Engine Oil .....	0.8810	405	470	14	none	0.02%	neutral	T. S. M. none. No rosin oil.
150° Fire Test Oil .....	0.7864	140	180	....	none	none	neutral	T. S. M. none.
300° Fire Test Oil .....	0.8206	266	300	32	none	none	neutral	T. S. M. none.
High Speed Engine Oil ..	0.9152	400	465	5	17.2%	0.06%	1.09%	No rosin oil.
High Speed Engine Oil ..	0.9149	400	475	3	15.3%	0.04%	1.06%	No rosin oil.
Ice Machine Oil .....	0.8941	430	495	-4	none	0.13%	neutral	T. S. M. trace. No rosin oil.
Machine Oil .....	0.8689	420	480	0	trace	none	neutral	No rosin oil. Vis. 11.7.‡
Marine Engine Oil .....	0.8812	405	440	17	none	trace	neutral	No rosin oil.
Marine Engine Oil .....	0.8765	435	500	5	none	0.03%	neutral	No rosin oil.
Marine Engine Oil .....	0.9090	405	465	0	12.0%	0.15%	0.75%	No rosin oil.
Marine Machine Oil .....	0.9054	400	470	9	9.0%	0.11%	0.50%	No rosin oil.
Screw-Cutting Oil .....	0.9002	380	425	15	25%	none	1.02%	T. S. M. none.
Transformer Oil .....	0.8646	365	430	2	none	none	neutral	T. S. M. none.

\* Saponifiable Matter. Obtain saponification value in usual way and calculate to rape oil, taking 175 as a mean value.

† T. S. M. = Tarry or suspended matter. Treat 5 c.c. of oil in a graduated tube with 100 c.c. 88° gasoline and allow to settle, reading off the sediment by the graduations.

‡ Vol. = Volatility. Heat 5 grams of oil in a tarred dish at 400° F. for 2 hours and calculate loss in weight to per cent.

|| Calculated to oleic acid.

§ Viscosity. Taken at 70° F. in Engler viscosimeter, water at 70° F. = 1.

¶ Above.

## XVI.—TEMPERATURE CORRECTION FOR REFRACTIVE INDICES OF OILS

By ALBERT F. SEEKER

Substance.	Correction for 1° C.	Substance.	Correction for 1° C.
Black mustard oil..	0.000361	Peanut oil .....	0.000366
Corn oil. ....	0.000366	Poppyseed oil .....	0.000369
Cottonseed oil.....	0.000368	Rape oil. ....	0.000364
Lard oil. ....	0.000368	Sesame oil .....	0.000370
Mustard oil.....	0.000360	Sunflower oil.....	0.000368
Olive oil.....	0.000365		

## XVII.—TEMPERATURE CORRECTION FOR SPECIFIC GRAVITY OF OILS

By ALBERT F. SEEKER

Substance.	Correction for 1° C.	Substance.	Correction for 1° C.
Butter fat. ....	0.000617	Olive oil .....	0.000629
Cocoa butter. ....	0.000717	Palm nut oil .....	0.000657
Cocanut oil. ....	0.000642	Peanut oil. ....	0.000655
Cod-liver oil. ....	0.000646	Rape oil.....	0.000620
Cottonseed oil.....	0.000629	Sesame oil.....	0.000624
Lard.....	0.000650	Tallow.....	0.000675
Lard oil.....	0.000658		

## XVIII.—CONVERSION OF ACID VALUE INTO OLEIC ACID

By ALBERT F. SEEKER

Acid Value.	Oleic Acid, Per cent.	Acid Value.	Oleic Acid, Per cent.
1.....	0.5027	6 .....	3.0162
2.....	1.0054	7 .....	3.5189
3.....	1.5081	8 .....	4.0216
4.....	2.0108	9 .....	4.5243
5.....	2.5135		



# XIX. — CONVERSION OF BUTYRO-REFRACTOMETER READINGS TO INDICES OF REFRACTION

BY ALBERT F. SEEKER

Butyro-R. Reading.	Index of Refraction.	Differ- ence.	Butyro-R. Reading.	Index of Refraction.	Differ- ence.	Butyro-R. Reading.	Index of Refraction.	Differ- ence.
0.....	1.4220	....	34.....	1.4481	7	68.....	1.4710	6
1.....	1.4228	8	35.....	1.4488	7	69.....	1.4717	7
2.....	1.4236	8	36.....	1.4495	7	70.....	1.4723	6
3.....	1.4244	8	37.....	1.4502	7	71.....	1.4729	6
4.....	1.4252	8	38.....	1.4510	8	72.....	1.4736	7
5.....	1.4260	8	39.....	1.4517	7	73.....	1.4742	6
6.....	1.4268	8	40.....	1.4524	7	74.....	1.4748	6
7.....	1.4276	8	41.....	1.4531	7	75.....	1.4754	6
8.....	1.4284	8	42.....	1.4538	7	76.....	1.4760	6
9.....	1.4292	8	43.....	1.4545	7	77.....	1.4766	6
10.....	1.4300	8	44.....	1.4552	7	78.....	1.4772	6
11.....	1.4308	8	45.....	1.4559	7	79.....	1.4778	6
12.....	1.4316	8	46.....	1.4566	7	80.....	1.4783	5
13.....	1.4324	8	47.....	1.4573	7	81.....	1.4789	6
14.....	1.4331	7	48.....	1.4580	7	82.....	1.4795	6
15.....	1.4339	8	49.....	1.4587	7	83.....	1.4801	6
16.....	1.4347	8	50.....	1.4593	6	84.....	1.4807	6
17.....	1.4354	7	51.....	1.4600	7	85.....	1.4812	5
18.....	1.4362	8	52.....	1.4607	7	86.....	1.4818	6
19.....	1.4370	8	53.....	1.4613	6	87.....	1.4824	6
20.....	1.4377	7	54.....	1.4620	7	88.....	1.4829	5
21.....	1.4385	8	55.....	1.4626	6	89.....	1.4835	6
22.....	1.4392	7	56.....	1.4633	7	90.....	1.4840	5
23.....	1.4400	8	57.....	1.4640	7	91.....	1.8446	6
24.....	1.4408	8	58.....	1.4646	6	92.....	1.4851	5
25.....	1.4415	7	59.....	1.4653	7	93.....	1.4857	6
26.....	1.4423	8	60.....	1.4659	6	94.....	1.4862	5
27.....	1.4430	7	61.....	1.4666	7	95.....	1.4868	6
28.....	1.4438	8	62.....	1.4672	6	96.....	1.4873	5
29.....	1.4445	7	63.....	1.4679	7	97.....	1.4879	6
30.....	1.4452	7	64.....	1.4685	6	98.....	1.4884	5
31.....	1.4460	8	65.....	1.4691	6	99.....	1.4890	6
32.....	1.4467	7	66.....	1.4698	7	100.....	1.4895	5
33.....	1.4474	7	67.....	1.4704	6	.....	.....	....

# CALCULATION OF GAS ANALYSES

## XX.—REDUCTION OF GAS VOLUMES TO 0° AND 760 MM.

$$\text{Volume at } 0^\circ \text{ and 760 mm.} = v \left( \frac{1}{760 (1 + .00367 t)} \right) (P - p)$$

$v$  = observed volume of gas

$t$  = observed temperature of gas in degrees Centigrade

$P$  = observed barometric pressure, corrected, in millimeters

$p$  = tension of aqueous vapor in millimeters

The logarithm of the volume at 0° and 760 mm. is obtained by adding the logs of  $v$  and  $\left( \frac{1}{760 (1 + .00367 t)} \right)$  and  $(P - p)$ .

°C.	Logarithm of $\frac{1}{760(1+.00367t)}$	Tension aqueous vapor. mm.	°C.	Logarithm of $\frac{1}{760(1+.00367t)}$	Tension aqueous vapor. mm.	°C.	Logarithm of $\frac{1}{760(1+.00367t)}$	Tension aqueous vapor. mm.
0.	3.11919	4.60	5.8	3.11004	6.90	11.6	3.10108	10.21
0.2	3.11887	4.65	6.0	3.10973	7.00	11.8	3.10078	10.34
0.4	3.11855	4.71	6.2	3.10942	7.09	12.0	3.10047	10.48
0.6	3.11824	4.78	6.4	3.10911	7.19	12.2	3.10017	10.62
0.8	3.11792	4.85	6.6	3.10880	7.29	12.4	3.09986	10.76
1.0	3.11760	4.92	6.8	3.10848	7.39	12.6	3.09956	10.90
1.2	3.11728	4.99	7.0	3.10818	7.49	12.8	3.09925	11.04
1.4	3.11696	5.06	7.2	3.10786	7.60	13.0	3.09895	11.19
1.6	3.11665	5.14	7.4	3.10755	7.70	13.2	3.09864	11.33
1.8	3.11633	5.21	7.6	3.10724	7.81	13.4	3.09834	11.48
2.0	3.11601	5.29	7.8	3.10693	7.91	13.6	3.09804	11.63
2.2	3.11570	5.36	8.0	3.10662	8.02	13.8	3.09773	11.78
2.4	3.11538	5.44	8.2	3.10631	8.13	14.0	3.09743	11.94
2.6	3.11507	5.52	8.4	3.10600	8.24	14.2	3.09713	12.09
2.8	3.11475	5.60	8.6	3.10570	8.36	14.4	3.09682	12.25
3.0	3.11443	5.68	8.8	3.10538	8.47	14.6	3.09652	12.41
3.2	3.11412	5.76	9.0	3.10508	8.58	14.8	3.09622	12.57
3.4	3.11380	5.84	9.2	3.10477	8.70	15.0	3.09592	12.73
3.6	3.11349	5.92	9.4	3.10446	8.82	15.2	3.09561	12.89
3.8	3.11317	6.00	9.6	3.10415	8.94	15.4	3.09531	13.06
4.0	3.11286	6.09	9.8	3.10384	9.06	15.6	3.09501	13.23
4.2	3.11255	6.17	10.0	3.10354	9.18	15.8	3.09471	13.39
4.4	3.11223	6.26	10.2	3.10323	9.30	16.0	3.09441	13.57
4.6	3.11192	6.35	10.4	3.10292	9.43	16.2	3.09411	13.74
4.8	3.11160	6.44	10.6	3.10262	9.55	16.4	3.09381	13.91
5.0	3.11129	6.53	10.8	3.10231	9.68	16.6	3.09351	14.09
5.2	3.11098	6.62	11.0	3.10200	9.81	16.8	3.09321	14.27
5.4	3.11067	6.71	11.2	3.10170	9.94	17.0	3.09291	14.45
5.6	3.11036	6.81	11.4	3.10139	10.07	17.2	3.09261	14.63

°C.	Logarithm of I 760(1+.00367t)	Tension aqueous vapor. mm.	°C.	Logarithm of I 760(1+.00367t)	Tension aqueous vapor. mm.	°C.	Logarithm of I 760(1+.00367t)	Tension aqueous vapor. mm.
17.4	3.09231	14.82	23.4	3.08341	21.39	29.4	3.07469	30.48
17.6	3.09201	15.00	23.6	3.08312	21.65	29.6	3.07440	30.84
17.8	3.09171	15.19	23.8	3.08282	21.91	29.8	3.07411	31.19
18.0	3.09141	15.38	24.0	3.08253	22.18	30.0	3.07383	31.56
18.2	3.09111	15.58	24.2	3.08224	22.45	30.2	3.07354	31.92
18.4	3.09081	15.77	24.4	3.08194	22.72	30.4	3.07325	32.29
18.6	3.09051	15.97	24.6	3.08165	22.99	30.6	3.07297	32.66
18.8	3.09021	16.17	24.8	3.08136	23.27	30.8	3.07268	33.04
19.0	3.08992	16.37	25.0	3.08107	23.55	31.0	3.07239	33.42
19.2	3.08962	16.57	25.2	3.08078	23.83	31.2	3.07211	33.80
19.4	3.08932	16.78	25.4	3.08048	24.11	31.4	3.07182	34.19
19.6	3.08902	16.98	25.6	3.08019	24.40	31.6	3.07154	34.58
19.8	3.08873	17.19	25.8	3.07990	24.69	31.8	3.07125	34.97
20.0	3.08843	17.41	26.0	3.07961	24.99	32.0	3.07097	35.37
20.2	3.08813	17.62	26.2	3.07932	25.28	32.2	3.07068	35.77
20.4	3.08783	17.84	26.4	3.07903	25.58	32.4	3.07039	36.18
20.6	3.08754	18.06	26.6	3.07874	25.89	32.6	3.07011	36.59
20.8	3.08724	18.28	26.8	3.07844	26.19	32.8	3.06983	37.01
21.0	3.08695	18.50	27.0	3.07816	26.50	33.0	3.06954	37.43
21.2	3.08665	18.73	27.2	3.07787	26.82	33.2	3.06926	37.85
21.4	3.08635	18.96	27.4	3.07758	27.13	33.4	3.06897	38.28
21.6	3.08606	19.19	27.6	3.07729	27.45	33.6	3.06869	38.71
21.8	3.08576	19.42	27.8	3.07700	27.78	33.8	3.06841	39.15
22.0	3.08547	19.66	28.0	3.07671	28.10	34.0	3.06812	39.59
22.2	3.08517	19.90	28.2	3.07642	28.43	34.2	3.06784	40.03
22.4	3.08488	20.14	28.4	3.07613	28.77	34.4	3.06756	40.48
22.6	3.08458	20.39	28.6	3.07584	29.10	34.6	3.06727	40.93
22.8	3.08429	20.63	28.8	3.07555	29.44	34.8	3.06699	41.39
23.0	3.08400	20.88	29.0	3.07527	29.78	35.0	3.06671	41.85
23.2	3.08370	21.14	29.2	3.07498	30.13			

# XXI.— CORRECTIONS OF BAROMETER READINGS FOR TEMPERATURE

GLASS SCALE (BUNSEN) mm. TO BE DEDUCTED

Barom- eter Reading, mm.	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°
700..	0.120	0.240	0.359	0.479	0.599	0.719	0.838	0.958	1.078	1.198
705..	0.121	0.241	0.362	0.483	0.603	0.724	0.844	0.965	1.086	1.206
710..	0.121	0.243	0.364	0.486	0.607	0.729	0.850	0.972	1.093	1.215
715..	0.122	0.245	0.367	0.489	0.612	0.734	0.856	0.979	1.101	1.223
720..	0.123	0.246	0.370	0.493	0.616	0.739	0.862	0.986	1.109	1.232
725..	0.124	0.248	0.372	0.496	0.620	0.744	0.868	0.992	1.116	1.240
730..	0.125	0.250	0.375	0.500	0.625	0.749	0.874	0.999	1.124	1.249
735..	0.126	0.252	0.377	0.503	0.629	0.755	0.880	1.006	1.132	1.258
740..	0.127	0.253	0.380	0.506	0.633	0.760	0.886	1.013	1.140	1.266
745..	0.127	0.255	0.382	0.510	0.637	0.765	0.892	1.020	1.147	1.275
750..	0.128	0.257	0.385	0.513	0.642	0.770	0.898	1.027	1.155	1.283
755..	0.129	0.258	0.388	0.517	0.646	0.775	0.904	1.033	1.163	1.292
760..	0.130	0.260	0.390	0.520	0.650	0.780	0.910	1.040	1.170	0.300
765..	0.131	0.262	0.393	0.524	0.654	0.785	0.916	1.047	1.178	1.309
770..	0.132	0.264	0.395	0.527	0.659	0.790	0.922	1.054	1.186	1.317
775..	0.133	0.265	0.398	0.530	0.663	0.796	0.928	1.061	1.193	1.326
780..	0.133	0.267	0.400	0.534	0.667	0.801	0.934	1.068	1.201	1.335
785..	0.134	0.269	0.403	0.537	0.672	0.806	0.940	1.075	1.209	1.343
790..	0.135	0.270	0.406	0.541	0.676	0.811	0.946	1.081	1.217	1.352
795..	0.136	0.272	0.407	0.544	0.680	0.816	0.952	1.088	1.224	1.360
800..	0.137	0.274	0.411	0.548	0.684	0.821	0.958	1.095	1.232	1.369

# XXII.—COEFFICIENT OF EXPANSION OF GASES \*

Gas.	Constant Volume.			Constant Pressure.		
	Temp. ° C.	Pressure, mm.	Coef. of Expansion.	Temp. ° C.	Pressure, mm.	Coef. of Expansion.
Air.....	0-100	5.8	.0037666	0-100	760	.0036706
	0-100	752	.0036660	0-100	1001	.0036728
	0-100	756-833	.0036700	0-100	2620 ..	.0036964
	0-100	1001	.0036744			.003681
	0-100	2000	.0036903			
	0-100	20000	.0038866			
	0-100	100000	.0041001			
Argon.....	0-100	517	.003668			
Carbon dioxide..	0-100	18.1	.0036753	0-40	518-760	.0037099
	20-98	760	.0037060	0-40	998	.0037536
	0-100	1743-2388	.0037523	0-40	1377	.0037906
	0-100	7927	.0042519	0-100	2520	.0038455
	0-64	19661.	.005728	0-64	12988	.005136
	64-100	35-40†	.003956	0-64	18856	.006204
	64-100	94-119†	.007018	64-100	46.5†	.004946
Carbon monoxide	0-100	760	.0036667	0-100	760	.0036688
Helium.....	0-100	523-681	.0036627			
Hydrogen.....	16-132	.077	.003328	0-100	760	.0036613
	12-185	4.7	.003656	0-100	200†	.00332
	0-100	520-694	.0036626	0-100	400†	.00295
	0-100	1100	.0036627	0-100	1000†	.00218
	13-132	0.6	.003021	0-100	1002	.0036732
Nitrogen.....	9-133	5.3	.003290	0-100	200†	.00434
	0-100	760	.0036682	0-100	600†	.00282
	0-40	1002	.0036752	0-100	1000†	.00218
	11-132	0.07	.004161	0-100	100†	.00486
Oxygen.....	9-132	2.5	.003984	0-100	200†	.00534
		354	.00367	0-100	400†	.00459
	21-98	760	.0036743	0-100	600†	.00357
				0-100	1000†	.00241
Nitric oxide.....	22-98	760	.0036757	0-100	760	.0037195
			.0037067			
Sulphur dioxide..	0-100	760	.0038453	0-100	760	.0039028
	0-100	765-1060	.0038591	0-100	980	.0039804
Water vapor....				0-119	760	.004187
				0-200	760	.003938

\* The data of this Table are quoted from Landolt-Börnstein, Phys.-Chem. Tabellen, 1905, p. 215.

† Atmospheres.

# XXIII.—DENSITY OF

WEIGHT IN GRAMS OF 1 C.C. NITROGEN AT 720 TO

mm.	10°	11°	12°	13°	14°	15°	16°	17°
720	1.13380	1.12881	1.12376	1.11875	1.11369	1.10859	1.10346	1.09828
722	1.13699	1.13199	1.12693	1.12191	1.11684	1.11172	1.10658	1.10139
724	1.14018	1.13517	1.13010	1.12506	1.11999	1.11486	1.10971	1.10450
726	1.14337	1.13835	1.13326	1.12822	1.12313	1.11799	1.11283	1.10761
728	1.14656	1.14153	1.13643	1.13138	1.12628	1.12113	1.11596	1.11073
730	1.14975	1.14471	1.13960	1.13454	1.12942	1.12426	1.11908	1.11384
732	1.15294	1.14789	1.14277	1.13769	1.13257	1.12739	1.12220	1.11695
734	1.15613	1.15107	1.14593	1.14085	1.13572	1.13053	1.12533	1.12006
736	1.15932	1.15424	1.14910	1.14401	1.13886	1.13366	1.12845	1.12317
738	1.16251	1.15742	1.15227	1.14716	1.14201	1.13680	1.13158	1.12629
740	1.16570	1.16060	1.15543	1.15032	1.14515	1.13993	1.13470	1.12940
742	1.16889	1.16378	1.15860	1.15348	1.14830	1.14306	1.13782	1.13251
744	1.17208	1.16696	1.16177	1.15663	1.15145	1.14620	1.14095	1.13562
746	1.17527	1.17014	1.16493	1.15979	1.15459	1.14933	1.14407	1.13873
748	1.17846	1.17332	1.16810	1.16295	1.15774	1.15247	1.14720	1.14185
750	1.18165	1.17650	1.17127	1.16611	1.16088	1.15560	1.15032	1.14496
752	1.18484	1.17968	1.17444	1.16926	1.16403	1.15873	1.15344	1.14807
754	1.18803	1.18286	1.17760	1.17242	1.16718	1.16187	1.15657	1.15118
756	1.19122	1.18603	1.18077	1.17558	1.17032	1.16500	1.15969	1.15429
758	1.19441	1.18921	1.18394	1.17873	1.17347	1.16814	1.16282	1.15741
760	1.19760	1.19239	1.18710	1.18189	1.17661	1.17127	1.16594	1.16052
762	1.20079	1.19557	1.19027	1.18505	1.17976	1.17440	1.16906	1.16363
764	1.20398	1.19875	1.19344	1.18820	1.18291	1.17754	1.17219	1.16674
766	1.20717	1.20193	1.19660	1.19136	1.18605	1.18067	1.17531	1.16985
768	1.21036	1.20511	1.19977	1.19452	1.18920	1.18381	1.17844	1.17297
770	1.21355	1.20829	1.20294	1.19768	1.19234	1.18694	1.18156	1.17608

# NITROGEN (DIETRICH)

770 MM. PRESSURE AND 10° TO 25° CENTIGRADE

mm.	18°	19°	20°	21°	22°	23°	24°	25°
720	1.09304	1.08774	1.08246	1.07708	1.07166	1.06616	1.06061	1.05499
722	1.09614	1.09083	1.08554	1.08015	1.07472	1.06921	1.06365	1.05801
724	1.09924	1.09392	1.08862	1.08322	1.07778	1.07226	1.06669	1.06104
726	1.10234	1.09702	1.09170	1.08629	1.08084	1.07531	1.06973	1.06407
728	1.10544	1.10011	1.09478	1.08936	1.08390	1.07836	1.07277	1.06710
730	1.10854	1.10320	1.09786	1.09243	1.08696	1.08141	1.07581	1.07013
732	1.11165	1.10629	1.10094	1.09550	1.09002	1.08446	1.07885	1.07316
734	1.11475	1.10938	1.10402	1.09857	1.09308	1.08751	1.08189	1.07619
736	1.11785	1.11248	1.10710	1.10165	1.09614	1.09056	1.08493	1.07922
738	1.12095	1.11557	1.11018	1.10472	1.09921	1.09361	1.08796	1.08225
740	1.12405	1.11866	1.11327	1.10799	1.10227	1.09666	1.09100	1.08528
742	1.12715	1.12175	1.11635	1.11086	1.10533	1.09971	1.09404	1.08831
744	1.13025	1.12484	1.11943	1.11393	1.10839	1.10276	1.09708	1.09134
746	1.13335	1.12794	1.12251	1.11700	1.11145	1.10581	1.10012	1.09437
748	1.13645	1.13103	1.12559	1.12007	1.11451	1.10886	1.10316	1.09740
750	1.13955	1.13412	1.12867	1.12314	1.11757	1.11191	1.10620	1.10043
752	1.14266	1.13721	1.13175	1.12621	1.12063	1.11496	1.10924	1.10346
754	1.14576	1.14030	1.13483	1.12928	1.12369	1.11801	1.11228	1.10649
756	1.14886	1.14340	1.13791	1.13236	1.12675	1.12106	1.11532	1.10952
758	1.15196	1.14649	1.13999	1.13543	1.12982	1.12411	1.11835	1.11255
760	1.15506	1.14958	1.14408	1.13850	1.13288	1.12716	1.12139	1.11558
762	1.15816	1.15267	1.14716	1.14157	1.13594	1.13021	1.12443	1.11861
764	1.16126	1.15576	1.15024	1.14464	1.13900	1.13326	1.12747	1.12164
766	1.16436	1.15886	1.15332	1.14771	1.14296	1.13631	1.13051	1.12467
768	1.16746	1.16195	1.15640	1.15078	1.14512	1.13936	1.13355	1.12770
770	1.17056	1.16504	1.15948	1.15385	1.14818	1.14241	1.13659	1.13073





XXIV  
TABLE OF LOGARITHMS

N.	0	1	2	3	4	5	6	7	8	9	P. P.
100	00 000	043	087	130	173	217	260	303	346	389	
101	432	475	518	561	604	647	689	732	775	817	44 43 42
102	860	903	945	988	*030	*072	*115	*157	*199	*242	1 4 4 4
103	01 284	326	368	410	452	494	536	578	620	662	2 9 9 8
104	703	745	787	828	870	912	953	995	*036	*078	3 13 13 13
											4 18 17 17
105	02 119	160	202	243	284	325	366	407	449	490	5 22 22 21
106	531	572	612	653	694	735	776	816	857	898	6 26 26 25
107	938	979	*019	*060	*100	*141	*181	*222	*262	*302	7 31 30 29
108	03 342	383	423	463	503	543	583	623	663	703	8 35 34 34
109	743	782	822	862	902	941	981	*021	*060	*100	9 40 39 38
110	04 139	179	218	258	296	336	376	415	454	493	
111	532	571	610	650	689	727	766	805	844	883	41 40 39
112	922	961	999	*038	*077	*115	*154	*192	*231	*269	1 4 4 4
113	05 308	346	385	423	461	500	538	576	614	652	2 8 8 8
114	690	729	767	805	843	881	918	956	994	*032	3 12 12 12
											4 16 16 16
115	06 070	108	145	183	221	258	296	333	371	408	5 21 20 20
116	446	483	521	558	595	633	670	707	744	781	6 25 24 23
117	819	856	893	930	967	*004	*041	*078	*115	*151	7 29 28 27
118	07 188	225	262	298	335	372	408	445	482	518	8 33 32 31
119	555	591	628	664	700	737	773	809	846	882	9 37 36 35
120	918	954	990	*027	*063	*099	*135	*171	*207	*243	
121	08 279	314	350	386	422	458	493	529	565	600	38 37 36
122	636	672	707	743	778	814	849	884	920	955	1 4 4 4
123	991	*026	*061	*096	*132	*167	*202	*237	*272	*307	2 8 7 7
124	09 342	377	412	447	482	517	552	587	621	656	3 11 11 11
											4 15 15 14
125	691	726	760	795	830	864	899	934	968	*003	5 19 19 18
126	10 037	072	106	140	175	209	243	278	312	346	6 23 22 22
127	380	415	449	483	517	551	585	619	653	687	7 27 26 25
128	721	755	789	823	857	890	924	958	992	*025	8 30 30 29
129	11 059	093	126	160	193	227	261	294	327	361	9 34 33 32
130	394	428	461	494	528	561	594	628	661	694	
131	727	760	793	826	860	893	926	959	992	*024	35 34 33
132	12 057	090	123	156	189	222	254	287	320	352	1 4 3 3
133	385	418	450	483	516	548	581	613	646	678	2 7 7 7
134	710	743	775	808	840	872	905	937	969	*001	3 11 10 10
											4 14 14 13
135	13 033	066	098	130	162	194	226	258	290	322	5 18 17 17
136	354	386	418	450	481	513	545	577	609	640	6 21 20 20
137	672	704	735	767	799	830	862	893	925	956	7 25 24 23
138	988	*019	*051	*082	*114	*145	*176	*208	*239	*270	8 28 27 26
139	14 301	333	364	395	426	457	489	520	551	582	9 32 31 30
140	613	644	675	706	737	768	799	829	860	891	
141	922	953	983	*014	*045	*076	*106	*137	*168	*198	32 31 30
142	15 229	259	290	320	351	381	412	442	473	503	1 3 3 3
143	534	564	594	625	655	685	715	746	776	806	2 6 6 6
144	836	866	897	927	957	987	*017	*047	*077	*107	3 10 9 9
											4 13 12 12
145	16 137	167	197	227	256	286	316	346	376	406	5 16 16 15
146	435	465	495	524	554	584	613	643	673	702	6 19 19 18
147	732	761	791	820	850	879	909	938	967	997	7 22 22 21
148	17 026	056	085	114	143	173	202	231	260	289	8 26 25 24
149	319	348	377	406	435	464	493	522	551	580	9 29 28 27
N.	0	1	2	3	4	5	6	7	8	9	P. P.

N.	0	1	2	3	4	5	6	7	8	9	P. P.	
150	17 609	638	667	696	725	754	782	811	840	869	29	28
151	898	926	955	984	*013	*041	*070	*099	*127	*156		
152	18 184	213	241	270	298	327	355	384	412	441		
153	469	498	526	554	583	611	639	667	696	724		
154	752	780	808	837	865	893	921	949	977	*005		
155	19 033	061	089	117	145	173	201	229	257	285	1	3
156	312	340	368	396	424	451	479	507	535	562	2	6
157	590	618	645	673	700	728	756	783	811	838	3	9
158	866	893	921	948	976	*003	*030	*058	*085	*112	4	12
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161	683	710	737	763	790	817	844	871	898	925	7	20
162	952	978	*005	*032	*059	*085	*112	*139	*165	*192	8	23
163	21 219	245	272	299	325	352	378	405	431	458	9	26
164	484	511	537	564	590	617	643	669	696	722	1	3
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170	23 045	070	096	121	147	172	198	223	249	274	7	19
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177	797	822	846	871	895	920	944	969	993	*018	5	13
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187	27 184	207	231	254	277	300	323	346	370	393	6	14
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189	646	669	692	715	738	761	784	807	830	852	8	19
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220	242	262	282	301	321	341	361	380	400	420	
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268	813	830	846	862	878	894	911	927	943	959	8 14
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272	457	473	489	505	521	537	553	569	584	600	1 2
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312	415	429	443	457	471	485	499	513	527	541	
313	554	568	582	596	610	624	638	651	665	679	
314	693	707	721	734	748	762	776	790	803	817	
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324	51 055	068	081	095	108	121	135	148	162	175	
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326	322	335	348	362	375	388	402	415	428	441	
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337	763	776	789	802	815	827	840	853	866	879	
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339	53 020	033	046	058	071	084	097	110	122	135	
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403	531	541	552	563	574	584	595	606	617	627	
404	638	649	660	670	681	692	703	713	724	735	
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431	448	458	468	478	488	498	508	518	528	538	
432	548	558	568	579	589	599	609	619	629	639	
433	649	659	669	679	689	699	709	719	729	739	
434	749	759	769	779	789	799	809	819	829	839	
435	849	859	869	879	889	899	909	919	929	939	
436	949	959	969	979	988	998	*008	*018	*028	*038	
437	64 048	058	068	078	088	098	108	118	128	137	1
438	147	157	167	177	187	197	207	217	227	237	2
439	246	256	266	276	286	296	306	316	326	335	3
440	345	355	365	375	385	395	404	414	424	434	4
441	444	454	464	473	483	493	503	513	523	532	5
442	542	552	562	572	582	591	601	611	621	631	6
443	640	650	660	670	680	689	699	709	719	729	7
444	738	748	758	768	777	787	797	807	816	826	8
445	836	846	856	865	875	885	895	904	914	924	
446	933	943	953	963	972	982	992	*002	*011	*021	
447	65 031	040	050	060	070	079	089	099	108	118	
448	128	137	147	157	167	176	186	196	205	215	
449	225	234	244	254	263	273	283	292	302	312	
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450	65 321	331	341	350	360	369	379	389	398	408	
451	418	427	437	447	456	466	475	485	495	504	
452	514	523	533	543	552	562	571	581	591	600	
453	610	619	629	639	648	658	667	677	686	696	
454	706	715	725	734	744	753	763	772	782	792	
455	801	811	820	830	839	849	858	868	877	887	
456	896	906	916	925	935	944	954	963	973	982	
457	992	*001	*011	*020	*030	*039	*049	*058	*068	*077	10
458	66 087	096	106	115	124	134	143	153	162	172	1
459	181	191	200	210	219	229	238	247	257	266	2
460	276	285	295	304	314	323	332	342	351	361	3
461	370	380	389	398	408	417	427	436	445	455	4
462	464	474	483	492	502	511	521	530	539	549	5
463	558	567	577	586	596	605	614	624	633	642	6
464	652	661	671	680	689	699	708	717	727	736	7
465	745	755	764	773	783	792	801	811	820	829	8
466	839	848	857	867	876	885	894	904	913	922	9
467	932	941	950	960	969	978	987	997	*006	*015	
468	67 025	034	043	052	062	071	080	089	099	108	
469	117	127	136	145	154	164	173	182	191	201	
470	210	219	228	237	247	256	265	274	284	293	
471	302	311	321	330	339	348	357	367	376	385	
472	394	403	413	422	431	440	449	459	468	477	
473	486	495	504	514	523	532	541	550	560	569	
474	578	587	596	605	614	624	633	642	651	660	
475	669	679	688	697	706	715	724	733	742	752	
476	761	770	779	788	797	806	815	825	834	843	
477	852	861	870	879	888	897	906	916	925	934	
478	943	952	961	970	979	988	997	*006	*015	*024	
479	68 034	043	052	061	070	079	088	097	106	115	
480	124	133	142	151	160	169	178	187	196	205	
481	215	224	233	242	251	260	269	278	287	296	
482	305	314	323	332	341	350	359	368	377	386	
483	395	404	413	422	431	440	449	458	467	476	
484	485	494	502	511	520	529	538	547	556	565	
485	574	583	592	601	610	619	628	637	646	655	
486	664	673	681	690	699	708	717	726	735	744	
487	753	762	771	780	789	797	806	815	824	833	
488	842	851	860	869	878	886	895	904	913	922	
489	931	940	949	958	966	975	984	993	*002	*011	
490	69 020	028	037	046	055	064	073	082	090	099	
491	108	117	126	135	144	152	161	170	179	188	
492	197	205	214	223	232	241	249	258	267	276	
493	285	294	302	311	320	329	338	346	355	364	
494	373	381	390	399	408	417	425	434	443	452	
495	461	469	478	487	496	504	513	522	531	539	
496	548	557	566	574	583	592	601	609	618	627	
497	636	644	653	662	671	679	688	697	705	714	
498	723	732	740	749	758	767	775	784	793	801	
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500	69 897	906	914	923	932	940	949	958	966	975	
501	984	992	*001	*010	*018	*027	*036	*044	*053	*062	
502	70 070	079	088	096	105	114	122	131	140	148	
503	157	165	174	183	191	200	209	217	226	234	
504	243	252	260	269	278	286	295	303	312	321	
505	329	338	346	355	364	372	381	389	398	406	
506	415	424	432	441	449	458	467	475	484	492	9
507	501	509	518	526	535	544	552	561	569	578	1 1
508	586	595	603	612	621	629	638	646	655	663	2 2
509	672	680	689	697	706	714	723	731	740	749	3 3
510	757	766	774	783	791	800	808	817	825	834	4 4
511	842	851	859	868	876	885	893	902	910	919	5 5
512	927	935	944	952	961	969	978	986	995	*003	6 5
513	71 012	020	029	037	046	054	063	071	079	088	7 6
514	096	105	113	122	130	139	147	155	164	172	8 7
515	181	189	198	206	214	223	231	240	248	257	9 8
516	265	273	282	290	299	307	315	324	332	341	
517	349	357	366	374	383	391	399	408	416	425	
518	433	441	450	458	466	475	483	492	500	508	
519	517	525	533	542	550	559	567	575	584	592	
520	600	609	617	625	634	642	650	659	667	675	
521	684	692	700	709	717	725	734	742	750	759	8
522	767	775	784	792	800	809	817	825	834	842	1 1
523	850	858	867	875	883	892	900	908	917	925	2 2
524	933	941	950	958	966	975	983	991	999	*008	3 2
525	72 016	024	032	041	049	057	066	074	082	090	4 3
526	099	107	115	123	132	140	148	156	165	173	5 4
527	181	189	198	206	214	222	230	239	247	255	6 5
528	263	272	280	288	296	304	313	321	329	337	7 6
529	346	354	362	370	378	387	395	403	411	419	8 6
530	428	436	444	452	460	469	477	485	493	501	9 7
531	509	518	526	534	542	550	558	567	575	583	
532	591	599	607	616	624	632	640	648	656	665	
533	673	681	689	697	705	713	722	730	738	746	
534	754	762	770	779	787	795	803	811	819	827	
535	835	843	852	860	868	876	884	892	900	908	
536	916	925	933	941	949	957	965	973	981	989	7
537	997	*006	*014	*022	*030	*038	*046	*054	*062	*070	1 1
538	73 078	086	094	102	111	119	127	135	143	151	2 1
539	159	167	175	183	191	199	207	215	223	231	3 2
540	239	247	255	263	272	280	288	296	304	312	4 3
541	320	328	336	344	352	360	368	376	384	392	5 4
542	400	408	416	424	432	440	448	456	464	472	6 4
543	480	488	496	504	512	520	528	536	544	552	7 5
544	560	568	576	584	592	600	608	616	624	632	8 6
545	640	648	656	664	672	679	687	695	703	711	9 6
546	719	727	735	743	751	759	767	775	783	791	
547	799	807	815	823	830	838	846	854	862	870	
548	878	886	894	902	910	918	926	933	941	949	
549	957	965	973	981	989	997	*005	*013	*020	*028	
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550	74 036	044	052	060	068	076	084	092	099	107	
551	115	123	131	139	147	155	162	170	178	186	
552	194	202	210	218	225	233	241	249	257	265	
553	273	280	288	296	304	312	320	327	335	343	
554	351	359	367	374	382	390	398	406	414	421	
555	429	437	445	453	461	468	476	484	492	500	
556	507	515	523	531	539	547	554	562	570	578	
557	586	593	601	609	617	624	632	640	648	656	
558	663	671	679	687	695	702	710	718	726	733	
559	741	749	757	764	772	780	788	796	803	811	
560	819	827	834	842	850	858	865	873	881	889	
561	896	904	912	920	927	935	943	950	958	966	8
562	974	981	989	997	*005	*012	*020	*028	*035	*043	1
563	75 051	059	066	074	082	089	097	105	113	120	2
564	128	136	143	151	159	166	174	182	189	197	3
565	205	213	220	228	236	243	251	259	266	274	4
566	282	289	297	305	312	320	328	335	343	351	5
567	358	366	374	381	389	397	404	412	420	427	6
568	435	442	450	458	465	473	481	488	496	504	7
569	511	519	526	534	542	549	557	565	572	580	8
570	587	595	603	610	618	626	633	641	648	656	9
571	664	671	679	686	694	702	709	717	724	732	
572	740	747	755	762	770	778	785	793	800	808	
573	815	823	831	838	846	853	861	868	876	884	
574	891	899	906	914	921	929	937	944	952	959	
575	967	974	982	989	997	*005	*012	*020	*027	*035	
576	76 042	050	057	065	072	080	087	095	103	110	
577	118	125	133	140	148	155	163	170	178	185	
578	193	200	208	215	223	230	238	245	253	260	
579	268	275	283	290	298	305	313	320	328	335	
580	343	350	358	365	378	380	388	395	403	410	
581	418	425	433	440	448	455	462	470	477	485	7
582	492	500	507	515	522	530	537	545	552	559	1
583	567	574	582	589	597	604	612	619	626	634	2
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585	716	723	730	738	745	753	760	768	775	782	4
586	790	797	805	812	819	827	834	842	849	856	5
587	864	871	879	886	893	901	908	916	923	930	6
588	938	945	953	960	967	975	982	989	997	*004	7
589	77 012	019	026	034	041	048	056	063	070	078	8
590	085	093	100	107	115	122	129	137	144	151	9
591	159	166	173	181	188	195	203	210	217	225	
592	232	240	247	254	262	269	276	283	291	298	
593	305	313	320	327	335	342	349	357	364	371	
594	379	386	393	401	408	415	422	430	437	444	
595	452	459	466	474	481	488	495	503	510	517	
596	525	532	539	546	554	561	568	576	583	590	
597	597	605	612	619	627	634	641	648	656	663	
598	670	677	685	692	699	706	714	721	728	735	
599	743	750	757	764	772	779	786	793	801	808	
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600	77 815	822	830	837	844	851	859	866	873	880	
601	887	895	902	909	916	924	931	938	945	952	
602	960	967	974	981	988	996	*003	*010	*017	*025	
603	78 032	039	046	053	061	068	075	082	089	097	
604	104	111	118	125	132	140	147	154	161	168	
605	176	183	190	197	204	211	219	226	233	240	
606	247	254	262	269	276	283	290	297	305	312	8
607	319	326	333	340	347	355	362	369	376	383	1
608	390	398	405	412	419	426	433	440	447	455	2
609	462	469	476	483	490	497	504	512	519	526	3
610	533	540	547	554	561	569	576	583	590	597	4
611	604	611	618	625	633	640	647	654	661	668	5
612	675	682	689	696	704	711	718	725	732	739	6
613	746	753	760	767	774	781	789	796	803	810	6
614	817	824	831	838	845	852	859	866	873	880	7
615	888	895	902	909	916	923	930	937	944	951	
616	958	965	972	979	986	993	*000	*007	*014	*021	
617	79 029	036	043	050	057	064	071	078	085	092	
618	099	106	113	120	127	134	141	148	155	162	
619	169	176	183	190	197	204	211	218	225	232	
620	239	246	253	260	267	274	281	288	295	302	7
621	309	316	323	330	337	344	351	358	365	372	1
622	379	386	393	400	407	414	421	428	435	442	1
623	449	456	463	470	477	484	491	498	505	511	2
624	518	525	532	539	546	553	560	567	574	581	3
625	588	595	602	609	616	623	630	637	644	650	4
626	657	664	671	678	685	692	699	706	713	720	4
627	727	734	741	748	754	761	768	775	782	789	5
628	796	803	810	817	824	831	837	844	851	858	6
629	865	872	879	886	893	900	906	913	920	927	6
630	934	941	948	955	962	969	975	982	989	996	
631	80 003	010	017	024	030	037	044	051	058	065	
632	072	079	085	092	099	106	113	120	127	134	
633	140	147	154	161	168	175	182	188	195	202	
634	209	216	223	229	236	243	250	257	264	271	
635	277	284	291	298	305	312	318	325	332	339	6
636	346	353	359	366	373	380	387	393	400	407	1
637	414	421	428	434	441	448	455	462	468	475	1
638	482	489	496	502	509	516	523	530	536	543	2
639	550	557	564	570	577	584	591	598	604	611	2
640	618	625	632	638	645	652	659	665	672	679	3
641	686	693	699	706	713	720	726	733	740	747	4
642	754	760	767	774	781	787	794	801	808	814	4
643	821	828	835	841	848	855	862	868	875	882	5
644	889	895	902	909	916	922	929	936	943	949	5
645	956	963	969	976	983	990	996	*003	*010	*017	
646	81 023	030	037	043	050	057	064	070	077	084	
647	090	097	104	111	117	124	131	137	144	151	
648	158	164	171	178	184	191	198	204	211	218	
649	224	231	238	245	251	258	265	271	278	285	
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650	81 291	298	305	311	318	325	331	338	345	351	
651		358	365	371	378	385	391	398	405	411	
652		425	431	438	445	451	458	465	471	478	
653		491	498	505	511	518	525	531	538	544	
654		558	564	571	578	584	591	598	604	611	
655		624	631	637	644	651	657	664	671	677	
656		690	697	704	710	717	723	730	737	743	
657		757	763	770	776	783	790	796	803	809	
658		823	829	836	842	849	856	862	869	875	
659		889	895	902	908	915	921	928	935	941	
660		954	961	968	974	981	987	994	*000	*007	*014
661	82 020	027	033	040	046	053	060	066	073	079	7
662		086	092	099	105	112	119	125	132	138	1
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664		217	223	230	236	243	249	256	263	269	3
665		282	289	295	302	308	315	321	328	334	4
666		347	354	360	367	373	380	387	393	400	5
667		413	419	426	432	439	445	452	458	465	6
668		478	484	491	497	504	510	517	523	530	7
669		543	549	556	562	569	575	582	588	595	8
670		607	614	620	627	633	640	646	653	659	9
671		672	679	685	692	698	705	711	718	724	
672		737	743	750	756	763	769	776	782	789	
673		802	808	814	821	827	834	840	847	853	
674		866	872	879	885	892	898	905	911	918	
675		930	937	943	950	956	963	969	975	982	
676		995	*001	*008	*014	*020	*027	*033	*040	*046	
677	83 059	065	072	078	085	091	097	104	110	117	
678		123	129	136	142	149	155	161	168	174	
679		187	193	200	206	213	219	225	232	238	
680		251	257	264	270	276	283	289	296	302	
681		315	321	327	334	340	347	353	359	366	
682		378	385	391	398	404	410	417	423	429	
683		442	448	455	461	467	474	480	481	493	
684		506	512	518	525	531	537	544	550	556	
685		569	575	582	588	594	601	607	613	620	
686		632	639	645	651	658	664	670	677	683	
687		696	702	708	715	721	727	734	740	746	
688		759	765	771	778	784	790	797	803	809	
689		822	828	835	841	847	853	860	866	872	
690		885	891	897	904	910	916	923	929	935	
691		948	954	960	967	973	979	985	992	998	
692	84 011	017	023	029	036	042	048	055	061	067	
693		073	080	086	092	098	105	111	117	123	
694		136	142	148	155	161	167	173	180	186	
695		198	205	211	217	223	230	236	242	248	
696		261	267	273	280	286	292	298	305	311	
697		323	330	336	342	348	354	361	367	373	
698		386	392	398	404	410	417	423	429	435	
699		448	454	460	466	473	479	485	491	497	
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<b>700</b>	84 510	516	522	528	535	541	547	553	559	566	
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<b>704</b>	757	763	770	776	782	788	794	800	807	813	
<b>705</b>	819	825	831	837	844	850	856	862	868	874	
<b>706</b>	880	887	893	899	905	911	917	924	930	936	7
<b>707</b>	942	948	954	960	967	973	979	985	991	997	1
<b>708</b>	85 003	009	016	022	028	034	040	046	052	058	2
<b>709</b>	065	071	077	083	089	095	101	107	114	120	3
<b>710</b>	126	132	138	144	150	156	163	169	175	181	4
<b>711</b>	187	193	199	205	211	217	224	230	236	242	5
<b>712</b>	248	254	260	266	272	278	285	291	297	303	6
<b>713</b>	309	315	321	327	333	339	345	352	358	364	7
<b>714</b>	370	376	382	388	394	400	406	412	418	425	8
<b>715</b>	431	437	443	449	455	461	467	473	479	485	9
<b>716</b>	491	497	503	509	516	522	528	534	540	546	
<b>717</b>	552	558	564	570	576	582	588	594	600	606	
<b>718</b>	612	618	625	631	637	643	649	655	661	667	
<b>719</b>	673	679	685	691	697	703	709	715	721	727	
<b>720</b>	733	739	745	751	757	763	769	775	781	788	
<b>721</b>	794	800	806	812	818	824	830	836	842	848	6
<b>722</b>	854	860	866	872	878	884	890	896	902	908	1
<b>723</b>	914	920	926	932	938	944	950	956	962	968	2
<b>724</b>	974	980	986	992	998	*004	*010	*016	*022	*028	3
<b>725</b>	86 034	040	046	052	058	064	070	076	082	088	4
<b>726</b>	094	100	106	112	118	124	130	136	141	147	5
<b>727</b>	153	159	165	171	177	183	189	195	201	207	6
<b>728</b>	213	219	225	231	237	243	249	255	261	267	7
<b>729</b>	273	279	285	291	297	303	308	314	320	326	8
<b>730</b>	332	338	344	350	356	362	368	374	380	386	9
<b>731</b>	392	398	404	410	415	421	427	433	439	445	
<b>732</b>	451	457	463	469	475	481	487	493	499	504	
<b>733</b>	510	516	522	528	534	540	546	552	558	564	
<b>734</b>	570	576	581	587	593	599	605	611	617	623	
<b>735</b>	629	635	641	646	652	658	664	670	676	682	
<b>736</b>	688	694	700	705	711	717	723	729	735	741	5
<b>737</b>	747	753	759	764	770	776	782	788	794	800	1
<b>738</b>	806	812	817	823	829	835	841	847	853	859	2
<b>739</b>	864	870	876	882	888	894	900	906	911	917	3
<b>740</b>	923	929	935	941	947	953	958	964	970	976	4
<b>741</b>	982	988	994	999	*005	*011	*017	*023	*029	*035	5
<b>742</b>	87 040	046	052	058	064	070	075	081	087	093	6
<b>743</b>	099	105	111	116	122	128	134	140	146	151	7
<b>744</b>	157	163	169	175	181	186	192	198	204	210	8
<b>745</b>	216	221	227	233	239	245	251	256	262	268	9
<b>746</b>	274	280	286	291	297	303	309	315	320	326	
<b>747</b>	332	338	344	349	355	361	367	373	379	384	
<b>748</b>	390	396	402	408	413	419	425	431	437	442	
<b>749</b>	448	454	460	466	471	477	483	489	495	500	
N.	0	1	2	3	4	5	6	7	8	9	P. P.

N.	0	1	2	3	4	5	6	7	8	9	P. P.
750	87 506	512	518	523	529	535	541	547	552	558	
751	564	570	576	581	587	593	599	604	610	616	
752	622	628	633	639	645	651	656	662	668	674	
753	679	685	691	697	703	708	714	720	726	731	
754	737	743	749	754	760	766	772	777	783	789	
755	795	800	806	812	818	823	829	835	841	846	
756	852	858	864	869	875	881	887	892	898	904	
757	910	915	921	927	933	938	944	950	955	961	
758	967	973	978	984	990	996	*001	*007	*013	*018	
759	88 024	030	036	041	047	053	058	064	070	076	
760	081	087	093	098	104	110	116	121	127	133	
761	138	144	150	156	161	167	173	178	184	190	6
762	195	201	207	213	218	224	230	235	241	247	1
763	252	258	264	270	275	281	287	292	298	304	2
764	309	315	321	326	332	338	343	349	355	360	3
765	366	372	377	383	389	395	400	406	412	417	4
766	423	429	434	440	446	451	457	463	468	474	5
767	480	485	491	497	502	508	513	519	525	530	6
768	536	542	547	553	559	564	570	576	581	587	7
769	593	598	604	610	615	621	627	632	638	643	8
770	649	655	660	666	672	677	683	689	694	700	9
771	705	711	717	722	728	734	739	745	750	756	
772	762	767	773	779	784	790	795	801	807	812	
773	818	824	829	835	840	846	852	857	863	868	
774	874	880	885	891	897	902	908	913	919	925	
775	930	936	941	947	953	958	964	969	975	981	
776	986	992	997	*003	*009	*014	*020	*025	*031	*037	
777	89 042	048	053	059	064	070	076	081	087	092	
778	098	104	109	115	120	126	131	137	143	148	
779	154	159	165	170	176	182	187	193	198	204	
780	209	215	221	226	232	237	243	248	254	260	
781	265	271	276	282	287	293	298	304	310	315	5
782	321	326	332	337	343	348	354	360	365	371	1
783	376	382	387	393	398	404	409	415	421	426	2
784	432	437	443	448	454	459	465	470	476	481	3
785	487	492	498	504	509	515	520	526	531	537	4
786	542	548	553	559	564	570	575	581	586	592	5
787	597	603	609	614	620	625	631	636	642	647	6
788	653	658	664	669	675	680	686	691	697	702	7
789	708	713	719	724	730	735	741	746	752	757	8
790	763	768	774	779	785	790	796	801	807	812	9
791	818	823	829	834	840	845	851	856	862	867	
792	873	878	883	889	894	900	905	911	916	922	
793	927	933	938	944	949	955	960	966	971	977	
794	982	988	993	998	*004	*009	*015	*020	*026	*031	
795	90 037	042	048	053	059	064	069	075	080	086	
796	091	097	102	108	113	119	124	129	135	140	
797	146	151	157	162	168	173	179	184	189	195	
798	200	206	211	217	222	227	233	238	244	249	
799	255	260	266	271	276	282	287	293	298	304	
N.	0	1	2	3	4	5	6	7	8	9	P. P.

N.	0	1	2	3	4	5	6	7	8	9	P. P.
800	90 309	314	320	325	331	336	342	347	352	358	
801	363	369	374	380	385	390	396	401	407	412	
802	417	423	428	434	439	445	450	455	461	466	
803	472	477	482	488	493	499	504	509	515	520	
804	526	531	536	542	547	553	558	563	569	574	
805	580	585	590	596	601	607	612	617	623	628	
806	634	639	644	650	655	660	666	671	677	682	
807	687	693	698	703	709	714	720	725	730	736	
808	741	747	752	757	763	768	773	779	784	789	
809	795	800	806	811	816	822	827	832	838	843	
810	849	854	859	865	870	875	881	886	891	897	
811	902	907	913	918	924	929	934	940	945	950	
812	956	961	966	972	977	982	988	993	998	*004	1 6
813	91 009	014	020	025	030	036	041	046	052	057	1 1
814	062	068	073	078	084	089	094	100	105	110	2 2
815	116	121	126	132	137	142	148	153	158	164	4 2
816	169	174	180	185	190	196	201	206	212	217	5 3
817	222	228	233	238	243	249	254	259	265	270	6 4
818	275	281	286	291	297	302	307	312	318	323	7 4
819	328	334	339	344	350	355	360	365	371	376	8 5
820	381	387	392	397	403	408	413	418	424	429	9 5
821	434	440	445	450	455	461	466	471	477	482	
822	487	492	498	503	508	514	519	524	529	535	
823	540	545	551	556	561	566	572	577	582	587	
824	593	598	603	609	614	619	624	630	635	640	
825	645	651	656	661	666	672	677	682	687	693	
826	698	703	709	714	719	724	730	735	740	745	
827	751	756	761	766	772	777	782	787	793	798	
828	803	808	814	819	824	829	834	840	845	850	
829	855	861	866	871	876	882	887	892	897	903	
830	908	913	918	924	929	934	939	944	950	955	
831	960	965	971	976	981	986	991	997	*002	*007	5
832	92 012	018	023	028	033	038	044	049	054	059	1 1
833	065	070	075	080	085	091	096	101	106	111	2 1
834	117	122	127	132	137	143	148	153	158	163	3 2
835	169	174	179	184	189	195	200	205	210	215	4 2
836	221	226	231	236	241	247	252	257	262	267	5 3
837	273	278	283	288	293	298	304	309	314	319	6 3
838	324	330	335	340	345	350	355	361	366	371	7 4
839	376	381	387	392	397	402	407	412	418	423	8 4
840	428	433	438	443	449	454	459	464	469	474	9 5
841	480	485	490	495	500	505	511	516	521	526	
842	531	536	542	547	552	557	562	567	572	578	
843	583	588	593	598	603	609	614	619	624	629	
844	634	639	645	650	655	660	665	670	675	681	
845	686	691	696	701	706	711	716	722	727	732	
846	737	742	747	752	758	763	768	773	778	783	
847	788	793	799	804	809	814	819	824	829	834	
848	840	845	850	855	860	865	870	875	881	886	
849	891	896	901	906	911	916	921	927	932	937	
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N.	0	1	2	3	4	5	6	7	8	9	P. P.
850	92 942	947	952	957	962	967	973	978	983	988	
851	993	998	*003	*008	*013	*018	*024	*029	*034	*039	
852	93 044	049	054	059	064	069	075	080	085	090	
853	095	100	105	110	115	120	125	131	136	141	
854	146	151	156	161	166	171	176	181	186	192	
855	197	202	207	212	217	222	227	232	237	242	
856	247	252	258	263	268	273	278	283	288	293	6
857	298	303	308	313	318	323	328	334	339	344	1 1
858	349	354	359	364	369	374	379	384	389	394	2 1
859	399	404	409	414	420	425	430	435	440	445	3 2
860	450	455	460	465	470	475	480	485	490	495	4 2
861	500	505	510	515	520	526	531	536	541	546	5 3
862	551	556	561	566	571	576	581	586	591	596	6 4
863	601	606	611	616	621	626	631	636	641	646	7 4
864	651	656	661	666	671	676	682	687	692	697	8 5
865	702	707	712	717	722	727	732	737	742	747	9
866	752	757	762	767	772	777	782	787	792	797	
867	802	807	812	817	822	827	832	837	842	847	
868	852	857	862	867	872	877	882	887	892	897	
869	902	907	912	917	922	927	932	937	942	947	
870	952	957	962	967	972	977	982	987	992	997	
871	94 002	007	012	017	022	027	032	037	042	047	5
872	052	057	062	067	072	077	082	086	091	096	1 1
873	101	106	111	116	121	126	131	136	141	146	2 1
874	151	156	161	166	171	176	181	186	191	196	3 2
875	201	206	211	216	221	226	231	236	240	245	4 2
876	250	255	260	265	270	275	280	285	290	295	5 3
877	300	305	310	315	320	325	330	335	340	345	6 3
878	349	354	359	364	369	374	379	384	389	394	7 4
879	399	404	409	414	419	424	429	433	438	443	8 4
880	448	453	458	463	468	473	478	483	488	493	9 5
881	498	503	507	512	517	522	527	532	537	542	
882	547	552	557	562	567	571	576	581	586	591	
883	596	601	606	611	616	621	626	630	635	640	
884	645	650	655	660	665	670	675	680	685	689	
885	694	699	704	709	714	719	724	729	734	738	
886	743	748	753	758	763	768	773	778	783	787	4
887	792	797	802	807	812	817	822	827	832	836	0
888	841	846	851	856	861	866	871	876	880	885	1 1
889	890	895	900	905	910	915	919	924	929	934	2 1
890	939	944	949	954	959	963	968	973	978	983	3 2
891	988	993	998	*002	*007	*012	*017	*022	*027	*032	4 2
892	95 036	041	046	051	056	061	066	071	075	080	5 2
893	085	090	095	100	105	109	114	119	124	129	6 2
894	134	139	143	148	153	158	163	168	173	177	7 3
895	182	187	192	197	202	207	211	216	221	226	8 3
896	231	236	240	245	250	255	260	265	270	274	9 4
897	279	284	289	294	299	303	308	313	318	323	
898	328	332	337	342	347	352	357	361	366	371	
899	376	381	386	390	395	400	405	410	415	419	
N.	0	1	2	3	4	5	6	7	8	9	P. P.

N.	0	1	2	3	4	5	6	7	8	9	P. P.	
900	95 424	429	434	439	444	448	453	458	463	468		
901	472	477	482	487	492	497	501	506	511	516		
902	521	525	530	535	540	545	550	554	559	564		
903	569	574	578	583	588	593	598	602	607	612		
904	617	622	626	631	636	641	646	650	655	660		
905	665	670	674	679	684	689	694	698	703	708		
906	713	718	722	727	732	737	742	746	751	756		
907	761	766	770	775	780	785	789	794	799	804		
908	809	813	818	823	828	832	837	842	847	852		
909	856	861	866	871	875	880	885	890	895	899		
910	904	909	914	918	923	928	933	938	942	947	1	5
911	952	957	961	966	971	976	980	985	990	995		
912	999	*004	*009	*014	*019	*023	*028	*033	*038	*042		
913	96 047	052	057	061	066	071	076	080	085	090		
914	095	099	104	109	114	118	123	128	133	137		
915	142	147	152	156	161	166	171	175	180	185	2	1
916	190	194	199	204	209	213	218	223	227	232	3	
917	237	242	246	251	256	261	265	270	275	280	4	
918	284	289	294	298	303	308	313	317	322	327	5	
919	332	336	341	346	350	355	360	365	369	374	6	
920	379	384	388	393	398	402	407	412	417	421	7	4
921	426	431	435	440	445	450	454	459	464	468	8	
922	473	478	483	487	492	497	501	506	511	515	9	
923	520	525	530	534	539	544	548	553	558	562		
924	567	572	577	581	586	591	595	600	605	609		
925	614	619	624	628	633	638	642	647	652	656	1	0
926	661	666	670	675	680	685	689	694	699	703		
927	708	713	717	722	727	731	736	741	745	750		
928	755	759	764	769	774	778	783	788	792	797		
929	802	806	811	816	820	825	830	834	839	844		
930	848	853	858	862	867	872	876	881	886	890	2	1
931	895	900	904	909	914	918	923	928	932	937	3	
932	942	946	951	956	960	965	970	974	979	984	4	
933	988	993	997	*002	*007	*011	*016	*021	*025	*030	5	
934	97 035	039	044	049	053	058	063	067	072	077	6	
935	081	086	090	095	100	104	109	114	118	123	7	3
936	128	132	137	142	146	151	155	160	165	169	8	
937	174	179	183	188	192	197	202	206	211	216	9	
938	220	225	230	234	239	243	248	253	257	262		
939	267	271	276	280	285	290	294	299	304	308		
940	313	317	322	327	331	336	340	345	350	354	1	1
941	359	364	368	373	377	382	387	391	396	400		
942	405	410	414	419	424	428	433	437	442	447		
943	451	456	460	465	470	474	479	483	488	493		
944	497	502	506	511	516	520	525	529	534	539		
945	543	548	552	557	562	566	571	575	580	585	2	2
946	589	594	598	603	607	612	617	621	626	630		
947	635	640	644	649	653	658	663	667	672	676		
948	681	685	690	695	699	704	708	713	717	722		
949	727	731	736	740	745	749	754	759	763	768		
N.	0	1	2	3	4	5	6	7	8	9	P. P.	

N.	0	1	2	3	4	5	6	7	8	9	P. P.
950	97 772	777	782	786	791	795	800	804	809	813	
951	818	823	827	832	836	841	845	850	855	859	
952	864	868	873	877	882	886	891	896	900	905	
953	909	914	918	923	928	932	937	941	946	950	
954	955	959	964	968	973	978	982	987	991	996	
955	98 000	005	009	014	019	023	028	032	037	041	
956	046	050	055	059	064	068	073	078	082	087	
957	091	096	100	105	109	114	118	123	127	132	
958	137	141	146	150	155	159	164	168	173	177	
959	182	186	191	195	200	204	209	214	218	223	
960	227	232	236	241	245	250	254	259	263	268	
961	272	277	281	286	290	295	299	304	308	313	
962	318	322	327	331	336	340	345	349	354	358	
963	363	367	372	376	381	385	390	394	399	403	
964	408	412	417	421	426	430	435	439	444	448	
965	453	457	462	466	471	475	480	484	489	493	
966	498	502	507	511	516	520	525	529	534	538	
967	543	547	552	556	561	565	570	574	579	583	
968	588	592	597	601	605	610	614	619	623	628	
969	632	637	641	646	650	655	659	664	668	673	
970	677	682	686	691	695	700	704	709	713	717	
971	722	726	731	735	740	744	749	753	758	762	
972	767	771	776	780	784	789	793	798	802	807	
973	811	816	820	825	829	834	838	843	847	851	
974	856	860	865	869	874	878	883	887	892	896	
975	900	905	909	914	918	923	927	932	936	941	
976	945	949	954	958	963	967	972	976	981	985	
977	989	994	998	*003	*007	*012	*016	*021	*025	*029	
978	99 034	038	043	047	052	056	061	065	069	074	
979	078	083	087	092	096	100	105	109	114	118	
980	123	127	131	136	140	145	149	154	158	162	
981	167	171	176	180	185	189	193	198	202	207	
982	211	216	220	224	229	233	238	242	247	251	
983	255	260	264	269	273	277	282	286	291	295	
984	300	304	308	313	317	322	326	330	335	339	
985	344	348	352	357	361	366	370	374	379	383	
986	388	392	396	401	405	410	414	419	423	427	
987	432	436	441	445	449	454	458	463	467	471	
988	476	480	484	489	493	498	502	506	511	515	
989	520	524	528	533	537	542	546	550	555	559	
990	564	568	572	577	581	585	590	594	599	603	
991	607	612	616	621	625	629	634	638	642	647	
992	651	656	660	664	669	673	677	682	686	691	
993	695	699	704	708	712	717	721	726	730	734	
994	739	743	747	752	756	760	765	769	774	778	
995	782	787	791	795	800	804	808	813	817	822	
996	826	830	835	839	843	848	852	856	861	865	
997	870	874	878	883	887	891	896	900	904	909	
998	913	917	922	926	930	935	939	944	948	952	
999	957	961	965	970	974	978	983	987	991	996	
											4534
N.	0	1	2	3	4	5	6	7	8	9	P. P.



**XXV**  
**PHYSICAL CONSTANTS OF INORGANIC  
COMPOUNDS**

# XXV.—PHYSICAL CONSTANTS

MOLECULAR WEIGHT, SPECIFIC GRAVITY,  
CRYSTALLINE FORM

Number.	Name.	Formula.	Molec- ular. Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Acetic Acid.....	H.C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> .....	60.03	1.0607 <sup>4</sup> °	17°
2	Aluminium.....	Al.....	27.1	2.5834°	657°
3	acetate normal....	Al(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>3</sub> .....	204.17	.....	decomp.
4	“ basic.....	Al(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> OH.....	162.16	.....	decomp.
5	bromide.....	Al <sub>2</sub> Br <sub>6</sub> .....	533.96	2.54	93°
6	“.....	Al <sub>2</sub> Br <sub>6</sub> .12H <sub>2</sub> O.....	750.15	.....	.....
7	carbide.....	Al <sub>4</sub> C <sub>3</sub> .....	144.40	2.36	.....
8	chlorate.....	Al(ClO <sub>3</sub> ) <sub>3</sub> .6H <sub>2</sub> O.....	385.55	.....	decomp.
9	chloride.....	Al <sub>2</sub> Cl <sub>3</sub> .....	266.90	.....	190, 2½ At.
10	“.....	Al <sub>2</sub> Cl <sub>3</sub> .12H <sub>2</sub> O.....	483.09	.....	.....
11	fluoride.....	Al <sub>2</sub> F <sub>6</sub> .....	168.2	3.10	.....
12	“.....	Al <sub>2</sub> F <sub>6</sub> .7H <sub>2</sub> O.....	294.31	.....	4H <sub>2</sub> O, 120
13	hydroxide mono-..	Al <sub>2</sub> O <sub>3</sub> .H <sub>2</sub> O.....	120.22	3.43	.....
14	“ di-.....	Al <sub>2</sub> O <sub>3</sub> .2H <sub>2</sub> O.....	138.23	.....	.....
15	“ tri-.....	Al <sub>2</sub> O <sub>3</sub> .3H <sub>2</sub> O.....	156.25	2.423	2H <sub>2</sub> O, 300
16	iodide.....	Al <sub>2</sub> I <sub>6</sub> .....	816.02	2.63	185°
17	“.....	Al <sub>2</sub> I <sub>6</sub> .12H <sub>2</sub> O.....	1032.2	.....	.....
18	nitride.....	Al <sub>2</sub> N <sub>3</sub> .....	82.28	.....	.....
19	nitrate.....	Al(NO <sub>3</sub> ) <sub>3</sub> .9H <sub>2</sub> O.....	375.36	.....	73°
20	oxide.....	Al <sub>2</sub> O <sub>3</sub> .....	102.2	3.73–3.99	white heat
21	phosphate.....	AlPO <sub>4</sub> .....	122.1	2.59	infusible
22	potassium tartrate	KAl(C <sub>4</sub> H <sub>4</sub> O <sub>6</sub> ) <sub>2</sub> .....	362.30	.....	.....
23	sodium chloride...	AlCl <sub>3</sub> .2NaCl.....	383.90	.....	185°
24	“ fluoride.....	Al <sub>2</sub> F <sub>6</sub> .6NaF.....	420.5	2.9–3.08	.....

The following abbreviations have been used in this table :—a. = acids ; al. = alcohol ; alk. = alkalies ; aq. r. = aqua regia ; dec. or decomp. = decomposes ; deliques. = deliquescent ; expl. = explodes ; gr. = green ; hexag. = hexagonal ; insol. = insoluble ; monocl. = monoclinic ; reg. = regular ; rhomb. = rhombic ; s. = slightly ; sol. = soluble ; tetrag. = tetragonal ; trimet. = trimetric ; v. = very ; ∞ = soluble in all proportions ; 4H<sub>2</sub>O, 120° indicates that 4 molecules of water are given off at 120°. The symbols of the common acids HCl, HNO<sub>3</sub>, H<sub>2</sub>SO<sub>4</sub>, usually designate dilute solutions of these acids. The same rule applies to the

# OF INORGANIC COMPOUNDS

## SOLUBILITY, MELTING AND BOILING POINT, AND COLOR

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	118°	∞	∞	∞ sol. alcohol.	.....
2	1470-1700°	insoluble	decomp.	sol. HCl, H <sub>2</sub> SO <sub>4</sub> , alk.; s. sol. NHO <sub>3</sub>	octahedral. ....
3	.....	soluble	decomp.	.....	.....
4	.....	insoluble	.....	sol. a.; insol. NH <sub>4</sub> salts.	amorphous ....
5	263.3° <sup>747mm</sup>	soluble	.....	sol. CS <sub>2</sub> , alcohol	.....
6	.....	soluble	soluble	sol. CS <sub>2</sub> , alcohol	.....
7	.....	dec. giv. CH <sub>4</sub>	.....	soluble acids	yellow hexag. ....
8	.....	v. soluble	v. soluble	..... [CS <sub>2</sub>	rhombohedral .
9	182.7° <sup>752mm</sup>	.....	.....	sol. CHCl <sub>3</sub> , CCl <sub>4</sub> , ether,	.....
10	.....	40	v. soluble	sol. ether; 50, alcohol.	.....
11	.....	soluble	soluble	.....	.....
12	6H <sub>2</sub> O, 250°	insoluble	s. soluble	.....	.....
13	.....	insoluble	insoluble	insol. acids, alkalies	trimetric
14	.....	insoluble	insoluble	insol. acids, alkalies	amorphous
15	.....	insoluble	insoluble	soluble acids, alkalies	hexagonal
16	360°	.....	.....	.....	.....
17	.....	v. soluble	v. soluble	soluble alcohol, CS <sub>2</sub>	.....
18	.....	slowly dec.	.....	soluble alkalies	yellow crystals
19	dec. 134°	v. soluble	.....	sol. alk., 100 alcohol	rhombic
20	.....	insoluble	insoluble	sol. conc. H <sub>2</sub> SO <sub>4</sub> , HCl, alk.	rhombohedral .
21	.....	insoluble	insoluble	soluble a., alk.; insoluble H.C <sub>2</sub> H <sub>3</sub> O <sub>2</sub>	amorphous ....
22	.....	soluble	soluble	.....	.....
23	white heat	soluble	soluble	.....	.....
24	.....	s. soluble	.....	insoluble HCl	.....

symbols of other substances usually employed in solution. Alcohol usually designates the ordinary 95% strength. The small figures after specific gravities indicate the temperature at which the specific gravity was taken, the upper figure being the temperature of the substance and the lower figure that of the water. When no temperature is given 15° may be assumed. The color of white or colorless compounds is omitted in the last column.

> = greater than.

< = less than.

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Aluminium, sulphate	Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	342.38	2.71	.....
2	sulphate.....	Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .18H <sub>2</sub> O....	666.67	1.62	decomp.
3	sulphide.....	Al <sub>2</sub> S <sub>3</sub> .....	150.38	2.37	.....
4	Alum, ammonium...	Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> . 24H <sub>2</sub> O.....	906.97	1.645 <sup>4</sup> °	94.5°
5	ammonium chrom.	Cr <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> . 24H <sub>2</sub> O.....	956.97	1.719	.....
6	ammonium iron...	Fe <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> . 24H <sub>2</sub> O.....	964.57	1.712	.....
7	cæsium.....	Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .Cs <sub>2</sub> SO <sub>4</sub> . 24H <sub>2</sub> O.....	1136.6	2.0215°	105-106°
8	potassium.....	Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .K <sub>2</sub> SO <sub>4</sub> . 24H <sub>2</sub> O.....	949.10	1.7571 <sup>4</sup> °	84.5°
9	potassium chrom..	Cr <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .K <sub>2</sub> SO <sub>4</sub> . 24H <sub>2</sub> O.....	999.12	1.81278°	89°
10	potassium iron...	Fe <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .K <sub>2</sub> SO <sub>4</sub> . 24H <sub>2</sub> O.....	1006.7	1.806	.....
11	potassium manga- nese.....	Mn <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .K <sub>2</sub> SO <sub>4</sub> . 24H <sub>2</sub> O.....	1004.9	.....	.....
12	rhubidium.....	Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .Rb <sub>2</sub> SO <sub>4</sub> . 24H <sub>2</sub> O.....	1041.6	1.87	99°
13	sodium.....	Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .Na <sub>2</sub> SO <sub>4</sub> . 24H <sub>2</sub> O.....	916.92	1.675 <sup>4</sup> °	61°
14	thallium.....	Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .Tl <sub>2</sub> SO <sub>4</sub> . 24H <sub>2</sub> O.....	1279.0	2.32	.....
15	Ammonia.....	NH <sub>3</sub> .....	17.06	{ 0.5971A 0.6234° lq	-77.05°
16	Ammonium acetate.	NH <sub>4</sub> C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> .....	77.10	.....	89°
17	antimonate.....	NH <sub>4</sub> SbO <sub>3</sub> .2H <sub>2</sub> O....	222.30	.....	decomp.
18	auricyanide.....	Au(CN) <sub>3</sub> .NH <sub>4</sub> CN. H <sub>2</sub> O.....	337.45	.....	decomp. 200°
19	aurocyanide.....	AuCN.NH <sub>4</sub> CN.....	267.35	.....	decomp. 150-200°
20	arsenate.....	(NH <sub>4</sub> ) <sub>3</sub> AsO <sub>4</sub> .3H <sub>2</sub> O....	247.26	.....	.....
21	arsenite.....	NH <sub>4</sub> AsO <sub>2</sub> .....	125.07	.....	.....
22	borofluoride.....	NH <sub>4</sub> BF <sub>4</sub> .....	105.07	1.85117°	.....
23	bromide.....	NH <sub>4</sub> Br.....	98.03	2.327 <sup>4</sup> °	sublimes
24	bromoplatinate...	(NH <sub>4</sub> )PtBr <sub>6</sub> ...[NH <sub>4</sub> .....	710.70	4.2	decomp.
25	carbamate.....	NH <sub>4</sub> HCO <sub>3</sub> .NH <sub>4</sub> CO <sub>2</sub> . .....	157.21	.....	sublimes
26	carbonate.....	(NH <sub>4</sub> ) <sub>2</sub> CO <sub>3</sub> .H <sub>2</sub> O....	114.16	.....	dec. 85°
27	" acid....	NH <sub>4</sub> HCO <sub>3</sub> .....	79.08	1.586	dec. 36-60°



Number.	Boiling Point, °C	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	36.1 <sup>20°</sup>	89.1 <sup>100°</sup>	.....	.....	.....
2	87	1132 <sup>100°</sup>	insoluble alcohol	.....	octahedral. ....
3	decomp.	.....	sol. a.	.....	yellow crystals
4	23H <sub>2</sub> O, 190°	5.2°	422 <sup>100°</sup>	insoluble alcohol	regular. ....
5	15 <sup>15°</sup>	soluble	soluble alcohol	.....	{ vio. or green regular.
6	40 <sup>15°</sup>	400	insoluble alcohol	.....	regular. ....
7	0.3°	8.5 <sup>80°</sup>	.....	.....	.....
8	23H <sub>2</sub> O, 190°	3.9°	357 <sup>100°</sup>	.....	regular. ....
9	20	50	insoluble alcohol	.....	green regular .
10	20	v. soluble.	insoluble alcohol	.....	violet regular .
11	decomp.	soluble	.....	.....	violet regular .
12	1.3°	32 <sup>80°</sup>	.....	.....	.....
13	107.1 <sup>10.6°</sup>	v. soluble	insoluble alcohol	.....	regular. ....
14	.....	.....	.....	.....	.....
15	-38.5°	104960c.c. <sup>0°</sup>	72722c.c. <sup>15°</sup>	soluble alcohol, ether.	crystals. ....
16	-38.5°	89.9°	57.8 <sup>16°</sup>	.....	.....
17	1484°	.....	.....	.....	.....
18	insoluble	.....	.....	.....	crystalline. ....
19	soluble	v. soluble	insoluble alcohol	.....	plates. ....
20	soluble	.....	soluble alkalies.	.....	.....
21	v. soluble	.....	soluble alkalies.	.....	prisms. ....
22	soluble	.....	soluble alcohol, ether.	.....	hexag. prisms
23	66.2 <sup>16°</sup>	128.2	.....	.....	regular. ....
24	0.59 <sup>20°</sup>	67 <sup>65°</sup>	.....	.....	red regular. ....
25	25 <sup>15°</sup>	.....	insoluble alcohol	.....	plates. ....
26	decomp.	27 <sup>30°</sup>	insoluble alcohol	.....	rhombic or monoclinic
27	11.9°	.....	.....	.....	.....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Ammonium carbon-	(NH <sub>4</sub> ) <sub>2</sub> CO <sub>3</sub> .			
	ate, sesqui. ....	2NH <sub>4</sub> HCO <sub>3</sub> .H <sub>2</sub> O.	272.32		decomp.
2	citrate. ....	(NH <sub>4</sub> ) <sub>3</sub> C <sub>6</sub> H <sub>5</sub> O <sub>7</sub> .	243.26		
3	chloraurate. ....	(NH <sub>4</sub> )AuCl <sub>4</sub> .5H <sub>2</sub> O.	447.15		5H <sub>2</sub> O, 100
4	chlorate. ....	NH <sub>4</sub> ClO <sub>3</sub> .	101.52		expl. 102°
5	chloride. ....	NH <sub>4</sub> Cl.	53.52	1.52017°	
6	chloroiridate. ....	(NH <sub>4</sub> ) <sub>2</sub> IrCl <sub>6</sub> .	441.84	2.856	
7	chloropalladate. ....	(NH <sub>4</sub> ) <sub>2</sub> PdCl <sub>6</sub> .	355.34	2.418	decomp.
8	chloropalladite. ....	(NH <sub>4</sub> ) <sub>2</sub> PdCl <sub>4</sub> .	284.44		decomp.
9	chloroplatinate. ....	(NH <sub>4</sub> ) <sub>2</sub> PtCl <sub>6</sub> .	443.64	2.94-3.06	decomp.
10	chloroplatinite. ....	(NH <sub>4</sub> ) <sub>2</sub> PtCl <sub>4</sub> .	372.74		decomp.
11	chlorostannate. ....	(NH <sub>4</sub> ) <sub>2</sub> SnCl <sub>6</sub> .	367.84	2.511	
12	chromate. ....	(NH <sub>4</sub> ) <sub>2</sub> CrO <sub>4</sub> .	152.24	1.88611°	decomp.
13	cyanate. ....	NH <sub>4</sub> CNO.	60.11		decomp.
14	cyanide. ....	NH <sub>4</sub> CN.	44.11		dec. 36°
15	dichromate. ....	(NH <sub>4</sub> ) <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> .	252.34	2.153	decomp.
16	dithionate. ....	(NH <sub>4</sub> ) <sub>2</sub> S <sub>2</sub> O <sub>6</sub> .	196.26	1.704	
17	ferric oxalate. ....	(NH <sub>4</sub> ) <sub>2</sub> Fe(C <sub>2</sub> O <sub>4</sub> ) <sub>3</sub> .			
		4H <sub>2</sub> O.	446.18	1.778517.5°	3H <sub>2</sub> O, 100°
18	ferrocyanide. ....	(NH <sub>4</sub> ) <sub>4</sub> Fe(CN) <sub>6</sub> .			
		6H <sub>2</sub> O.	262.32		
19	fluoride. ....	NH <sub>4</sub> F.	37.07		
20	“ acid. ....	NH <sub>4</sub> F.HF.	57.08	1.21111°	
21	formate. ....	NH <sub>4</sub> CHO <sub>2</sub> .	63.08	1.266	decomp.
22	gallate. ....	NH <sub>4</sub> C <sub>7</sub> H <sub>5</sub> O <sub>5</sub> .H <sub>2</sub> O.	205.13		
23	hypophosphite. ....	NH <sub>4</sub> H <sub>2</sub> PO <sub>2</sub> .	83.09		100°
24	iodate. ....	NH <sub>4</sub> IO <sub>3</sub> .	193.04	3.31-3.34	dec. 150°
25	iodide. ....	NH <sub>4</sub> I.	145.04	2.501	sublimes
26	metavanadate. ....	NH <sub>4</sub> VO <sub>3</sub> .	69.27		decomp.
27	molybdate. ....	(NH <sub>4</sub> ) <sub>2</sub> MoO <sub>4</sub> .	196.14	2.38-2.95	decomp.
28	“ hepta-. ....	(NH <sub>4</sub> ) <sub>6</sub> Mo <sub>7</sub> O <sub>24</sub> .4H <sub>2</sub> O.	1236.5		
29	nitrate. ....	NH <sub>4</sub> NO <sub>3</sub> .	80.11	1.72515°	153°-166°
30	nitrite. ....	NH <sub>4</sub> NO <sub>2</sub> .	64.11	1.69	decomp.
31	oxalate. ....	(NH <sub>4</sub> ) <sub>2</sub> C <sub>2</sub> O <sub>4</sub> .H <sub>2</sub> O.	142.16	1.502	
32	“ acid. ....	NH <sub>4</sub> HC <sub>2</sub> O <sub>4</sub> .H <sub>2</sub> O.	125.10	1.556	
33	perchlorate. ....	NH <sub>4</sub> ClO <sub>4</sub> .	117.52	1.87	decomp.
34	perchromate. ....	(NH <sub>4</sub> ) <sub>2</sub> CrO <sub>5</sub> .	234.32		dec. 50°
35	permanganate. ....	NH <sub>4</sub> MnO <sub>4</sub> .	137.07	2.207610.25°	decomp.
36	persulphate. ....	(NH <sub>4</sub> ) <sub>2</sub> S <sub>2</sub> O <sub>8</sub> .	228.26		decomp.
37	phosphate di-. ....	(NH <sub>4</sub> ) <sub>2</sub> HPO <sub>4</sub> .	132.15	1.619	
38	“ mono-. ....	NH <sub>4</sub> H <sub>2</sub> PO <sub>4</sub> .	115.09	1.8031°	

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1		2513°	5049°		
2		deliques.			
3		soluble		soluble alcohol	yellow monocl.
4		soluble		soluble alcohol	monoclinic.
5		28.40°	73100°	soluble alcohol	reg. or tetrag.
6		5.			reddish-brown
7		soluble			bright red
8		v. soluble		insoluble alcohol	olive gr. needles
9		0.6720°	1.25100°	0.005 alcohol	yellow regular
10		soluble	v. soluble.		tetragonal
11		33.3315°			
12		4030°	decomp.		yellow monocl.
13		soluble	decomp.	s. soluble alcohol	
14		soluble	v. soluble	soluble alcohol	regular
15		47.130°	v. soluble		orange monocl.
16		v. soluble		insoluble alcohol	monoclinic.
17	dec. 165°	42.80°	345100°		light green crys.
18		soluble		insoluble alcohol	monoclinic.
19		v. soluble	decomp.	s. soluble alcohol	hexagonal
20		v. soluble			rhombic.
21		soluble			monoclinic.
22		soluble			
23		soluble	soluble	v. soluble alcohol	rhombic tablets
24		2.615°	14.5100°		rhombic.
25		v. soluble	v. soluble	v. soluble alcohol	regular
26		s. soluble	v. soluble	insol. NH <sub>4</sub> Cl	crystalline
27		decomposes	decomp.	insoluble alcohol	monoclinic.
28		soluble			monoclinic.
29	dec. 210°	20018°	v. soluble	v. soluble alcohol	rh'b. or tetrag.
30		soluble	decomp.	soluble alcohol	
31		4.215°	41.34		trimet. prisms
32		soluble			trimet. prisms
33		soluble	v. soluble		rhombic.
34		s. soluble		s. sol. NH <sub>3</sub> ; insol. al., ether	red octahedral
35		v. soluble			rhombic.
36		58.20°			monoclinic.
37		25	decomp.	insoluble alcohol	monoclinic.
38		soluble.			tetragonal

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
<b>Ammonium</b>					
1	phosphate meta...	(NH <sub>4</sub> ) <sub>3</sub> P <sub>3</sub> O <sub>12</sub> .....	388.29		
2	phosphite.....	NH <sub>4</sub> H <sub>2</sub> PO <sub>3</sub> .....	99.09		123°
3	phosphomolybdate	(NH <sub>4</sub> ) <sub>3</sub> PO <sub>4</sub> ·12MoO <sub>3</sub> · 3H <sub>2</sub> O.....	1931.3		
4	salicylate.....	NH <sub>4</sub> C <sub>7</sub> H <sub>5</sub> O <sub>3</sub> .....	155.11		
5	selenate.....	(NH <sub>4</sub> ) <sub>2</sub> SeO <sub>4</sub> .....	179.34	2.197 <sup>18°</sup>	decomp.
6	stannic chloride..	(NH <sub>4</sub> ) <sub>2</sub> SnCl <sub>6</sub> .....	367.84	2.511	
7	sulphate.....	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .....	132.20	1.7687 <sup>9</sup>	140°
8	" acid.....	NH <sub>4</sub> HSO <sub>4</sub> .....	115.14	1.787	
9	sulphite.....	(NH <sub>4</sub> ) <sub>2</sub> SO <sub>3</sub> ·H <sub>2</sub> O.....	134.22		decomp.
10	sulphite acid.....	NH <sub>4</sub> HSO <sub>3</sub> .....	99.14		decomp.
11	sulphide.....	(NH <sub>4</sub> ) <sub>2</sub> S.....	68.20		decomp.
12	" penta.....	(NH <sub>4</sub> ) <sub>2</sub> S <sub>5</sub> .....	196.44		
13	sulphydrate.....	NH <sub>4</sub> HS.....	51.14		decomp.
14	sulphocyanate.....	NH <sub>4</sub> CNS.....	76.17	1.3057 <sup>13°</sup>	159°
15	tartrate.....	(NH <sub>4</sub> ) <sub>2</sub> C <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .....	184.18	1.601	
16	" acid.....	NH <sub>4</sub> HC <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .....	167.11	1.680	
17	thiocarbonate.....	(NH <sub>4</sub> ) <sub>2</sub> CS <sub>3</sub> .....	144.32		sublimes
18	thiosulphate.....	(NH <sub>4</sub> ) <sub>2</sub> S <sub>2</sub> O <sub>3</sub> .....	148.26		
19	tungstate meta...	(NH <sub>4</sub> ) <sub>2</sub> W <sub>12</sub> O <sub>42</sub> ·8H <sub>2</sub> O.....	1124.3		7H <sub>2</sub> O, 100°
20	" para.....	(NH <sub>4</sub> ) <sub>6</sub> W <sub>12</sub> O <sub>42</sub> ·6H <sub>2</sub> O.....	1888.5		4H <sub>2</sub> O, 100°
21	Antimonic Acid	HSbO <sub>3</sub> .....	169.21	6.6	decomp.
22	" " " pyro...	H <sub>2</sub> Sb <sub>2</sub> O <sub>7</sub> .....	356.43		H <sub>2</sub> O, 200°
23	Antimonous Acid	HSbO <sub>2</sub> .....	153.21		decomp.
24	Antimony.....	Sb.....	120.2	6.62	630°
25	bromide.....	SbBr <sub>3</sub> .....	360.10	4.148 <sup>23°</sup>	93°
26	chloride tri.....	SbCl <sub>3</sub> .....	226.55	3.064 <sup>26°</sup>	73.2°
27	" penta.....	SbCl <sub>5</sub> .....	297.45	2.346 <sup>11</sup>	-6°
28	fluoride tri.....	SbF <sub>3</sub> .....	177.2	4.379 <sup>20.9°</sup>	292°
29	" penta.....	SbF <sub>5</sub> .....	215.2	2.990 <sup>22.8°</sup>	
30	hydride (stibine) ..	SbH <sub>3</sub> .....	123.22	4.344 <sup>15°A</sup>	-91.5°
31	iodide tri.....	SbI <sub>3</sub> .....	501.11	4.848 <sup>26°</sup>	167°
32	" ".....	SbI <sub>5</sub> .....	501.11		167°
33	" ".....	SbI <sub>3</sub> .....	501.11	4.768 <sup>22°</sup>	167°
34	oxide tri.....	Sb <sub>2</sub> O <sub>3</sub> .....	288.4	5.2-5.67	red heat
35	" tetr.....	Sb <sub>2</sub> O <sub>4</sub> .....	304.4	4.07	O, 800°
36	oxide pent.....	Sb <sub>2</sub> O <sub>5</sub> .....	320.40	3.78	O, 300°
37	oxychloride (-ous)	SbOCl.....	171.65		
38	" (-ic) ..	SbOCl <sub>3</sub> .....	242.55		decomp.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.) Acids (a.), Alkalies (alk.), etc.	
1		soluble			tetragonal
2	dec. 150°	soluble			
3		insoluble	insoluble	insol. al., HNO <sub>3</sub> ; sol. alk.	yellow
4		soluble			monoclinic
5		soluble			rh'b. or monocl.
6		33			regular
7	dec. 280°	71°	97.5	insoluble alcohol	rhombic
8		100			rhombic
9		100 <sup>12</sup>		insoluble alcohol	monoclinic
10		soluble			rhombic
11		v. soluble			[prisms
12		soluble			orange red
13		v. soluble		soluble alcohol	rhombic
14	dec. 170°	122°	162 <sup>20</sup>	soluble alcohol	
15		soluble			monoclinic
16		s. soluble		insol. al.; sol. a., alk.	
17		v. soluble		insol. alcohol, ether	yellow
18		soluble			rhombic
19		120		insol. alcohol, ether	octahedra
20		2.8 <sup>15</sup>	4.5 <sup>22</sup>		rhombic
21		s. soluble	s. soluble	soluble acids and KOH	
22		s. soluble	s. soluble	soluble KOH	
23		insoluble	insoluble	insoluble alcohol	
24	1500–1700°	insoluble	insoluble	sol. hot conc. H <sub>2</sub> SO <sub>4</sub> , aq. r.	hexag. rhomb.
25	280°	decomp.	decomp.	sol. HCl, HBr, CS <sub>2</sub> , al.	rhombic
26	223.5°	decomp.	decomp.	sol. al., HCl, H <sub>2</sub> C <sub>4</sub> H <sub>4</sub> O <sub>6</sub>	rhombic
27	102°–103° *	decomp.	decomp.	sol. HCl	
28	sublimes	soluble	decomp.		octahedral
29	155°	soluble		soluble KF	oily liquid
30	–18° †	20c.c.	4	1500c.c.al., 2500c.c.CS <sub>2</sub>	
31	401°	decomp.	decomp.	{ soluble alcohol,	red hexagonal
32	401°	decomp.	decomp.	{ HI, HCl	yellow rhomb.
33	401°	decomp.	decomp.	{ KI, CS <sub>2</sub>	red monoclinic
34	1550°	.00182 <sup>15</sup>	.01	sol. HCl, KOH, H <sub>2</sub> C <sub>4</sub> H <sub>4</sub> O <sub>6</sub>	{ trimetric octahedral
35		insoluble	insoluble	sol. hot conc. HCl	
36	O <sub>2</sub> , 800°	insoluble	insoluble	soluble HCl, KOH, HI	yellow
37		insoluble	decomp.	insol. al.; sol. HCl, CS <sub>2</sub>	monoclinic
38		insoluble	decomp.	soluble alcohol	yellow

\* At 68 mm.

† Decomposes at 150°.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
<b>Antimony</b>					
1	sulphate . . . . .	Sb <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> . . . . .	528.38	4.89	decomp.
2	sulphide tri- . . . . .	Sb <sub>2</sub> S <sub>3</sub> . . . . .	336.58	4.652	fusible
3	" penta- . . . . .	Sb <sub>2</sub> S <sub>5</sub> . . . . .	400.70	4.120 <sup>00</sup>	fusible
<b>Antimonyl</b>					
4	potassium tartrate . . . . .	K(SbO)C <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .½H <sub>2</sub> O	332.38	2.6	½H <sub>2</sub> O, 100°
5	sulphate basic . . . . .	(SbO) <sub>2</sub> SO <sub>4</sub> .Sb <sub>2</sub> (OH) <sub>4</sub>	676.49		
6	Argon . . . . .	A . . . . .	39.9	{ 1.379 A. 19.96 D	-187.9°
7	Arsenic crystalline . . . . .	As <sub>4</sub> . . . . .	300	5.727 <sup>14</sup>	subl. 449½°
8	" amorphous . . . . .	As <sub>4</sub> . . . . .	300	4.716 <sup>14</sup>	
9	acid . . . . .	H <sub>3</sub> AsO <sub>4</sub> .½H <sub>2</sub> O	151.03	2.5	35.5°
10	fluoride . . . . .	AsF <sub>3</sub> . . . . .	170.00	5.964 D	-80°
11	iodide di- . . . . .	AsI <sub>2</sub> . . . . .	328.94		
12	" penta- . . . . .	AsI <sub>5</sub> . . . . .	709.85	3.93	70°
13	pentoxide . . . . .	As <sub>2</sub> O <sub>5</sub> . . . . .	230.0	3.99-4.25	red heat
14	sulphide di-(realgar) . . . . .	As <sub>2</sub> S <sub>3</sub> . . . . .	214.12	3.4-3.6	fusible
15	" penta- . . . . .	As <sub>2</sub> S <sub>5</sub> . . . . .	310.30		v. fusible
16	Arsenous bromide . . . . .	AsBr <sub>3</sub> . . . . .	314.88	3.66½	31°
17	chloride . . . . .	AsCl <sub>3</sub> . . . . .	181.35	2.205½	-18°
18	fluoride . . . . .	AsF <sub>3</sub> . . . . .	132.00	2.73	-8.5°
19	hydride (arsine) . . . . .	AsH <sub>3</sub> . . . . .	78.02	2.695 A.	-113.5°
20	iodide . . . . .	AsI <sub>3</sub> . . . . .	455.91	4.39½	146°
21	oxide . . . . .	As <sub>2</sub> O <sub>3</sub> . . . . .	396	3.65-4.15	sublimes
22	" . . . . .	As <sub>2</sub> O <sub>5</sub> . . . . .	396	3.738	200°
23	oxychloride . . . . .	AsOCl . . . . .	126.45		fusible
24	phosphide . . . . .	AsP . . . . .	106.00		
25	selenide . . . . .	As <sub>2</sub> Se <sub>3</sub> . . . . .	387.60	4.75	360°
26	sulphide (orpiment) . . . . .	As <sub>2</sub> S <sub>3</sub> . . . . .	246.18	3.40-3.46	v. fusible
27	Auric bromide . . . . .	AuBr <sub>3</sub> . . . . .	437.08		
28	chloride . . . . .	AuCl <sub>3</sub> . . . . .	303.55		288°*
29	" . . . . .	AuCl <sub>3</sub> .2H <sub>2</sub> O . . . . .	339.58		decomp.
30	cyanide . . . . .	Au(CN) <sub>3</sub> .6H <sub>2</sub> O . . . . .	383.42		
31	hydroxide . . . . .	Au(OH) <sub>3</sub> . . . . .	248.22		1½H <sub>2</sub> O, 100
32	iodide . . . . .	AuI <sub>3</sub> . . . . .	578.11		
33	hydrogen nitrate . . . . .	Au(NO <sub>3</sub> ) <sub>3</sub> .HNO <sub>3</sub> . 3H <sub>2</sub> O . . . . .	500.42	2.58	decomp.
34	oxide . . . . .	Au <sub>2</sub> O <sub>3</sub> . . . . .	442.4		0.160°†
35	sulphate . . . . .	Au <sub>2</sub> O <sub>3</sub> .2SO <sub>3</sub> .H <sub>2</sub> O . . . . .	620.54		
36	sulphide . . . . .	Au <sub>2</sub> S <sub>3</sub> . . . . .	490.58		
37	Auricyanhydric Acid . . . . .	HAu(CN) <sub>4</sub> .3H <sub>2</sub> O . . . . .	356.42		50°

\* Under a pressure of two atmospheres of Chlorine.

† Loses O<sub>2</sub> at 250°.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	decomp.	decomp.	sol. $\text{H}_2\text{SO}_4$ .....	.....
2	volatile	insoluble	decomp.	sol. alk., $\text{NH}_4\text{HS}$ , $\text{K}_2\text{S}$ , $\text{HCl}$ ..	black hexag...
3	.....	insoluble	insoluble	sol. alk., $\text{NH}_4\text{HS}$ , $\text{HCl}$ ..	orange. ....
4	.....	5.268.7°	35.7100°	insoluble alcohol.....	octahedral....
5	.....	insoluble	decomp.	.....	.....
6	-186.1°	5.6c.c.1°	2.57c.c.50°	.....	.....
7	.....	insoluble	insoluble	{ sol. $\text{HNO}_3$ , $\text{Cl}_2$ , $\text{H}_2\text{O}$ ...	gray rhomboh.
8	<360°	insoluble	insoluble	{ aq. r., hot alk.....	black amor-
9	$\text{H}_2\text{O}$ , 160°	16.7	50	soluble alkalies.....	.....[phous
10	-53°	soluble	.....	soluble alk., al., ether..	.....
11	.....	.....	.....	sol. al., ether, $\text{CS}_2$ , $\text{CHCl}_3$	dark red prisms
12	.....	decomp.	.....	.....	.....
13	decomp.	150	v. soluble	v. soluble.....	amorphous....
14	.....	insoluble	insoluble	sol. $\text{K}_2\text{S}$ , $\text{NaHCO}_3$ .....	red monoclinic
15	sublimes	insoluble	insoluble	soluble alkalies, $\text{HNO}_3$ ..	yellow.....
16	221°	decomp.	decomp.	soluble $\text{HBr}$ , $\text{HCl}$ .....	prisms.....
17	130.2°	decomp.	decomp.	sol. $\text{HBr}$ , $\text{HCl}$ , al., ether	needles.....
18	63°	decomp.	decomp.	sol. alcohol, ether.....	.....
19	-54.8° †	.....	.....	s. soluble alkalies.....	.....
20	394-414°	.....	30100°	soluble alcohol, ether..	red hexagonal.
21	125°-150°	1.716°	10.14	{ sol. alk.; alk. carbon-	reg. octahedral
22	.....	3.7	11.46	{ ates; $\text{HCl}$ , alcohol	amorphous....
23	.....	decomp.	decomp.	.....	.....
24	.....	decomp.	decomp.	sol. $\text{CS}$ ; insol. al., ether	brown.....
25	.....	insoluble	decomp.	soluble alkalies.....	.....[monoclinic
26	>700°	s. soluble	s. soluble	sol. alk.; alk. carbonates	yellow or red
27	.....	soluble	.....	soluble ether.....	dark brown...
28	.....	68	v. soluble	soluble alcohol, ether..	red brown leaf.
29	.....	soluble	soluble	soluble alcohol.....	orange.....
30	.....	v. soluble	v. soluble	soluble alcohol.....	.....
31	dec. 250°	insoluble	insoluble	soluble conc. $\text{HNO}_3$ ...	yellow brown..
32	.....	insoluble	decomp.	soluble iodides.....	dark green....
33	.....	decomp.	.....	soluble $\text{HNO}_3$ .....	yellow triclinic
34	.....	insoluble	insoluble	soluble $\text{HCl}$ .....	octahedral
35	.....	deliques.	decomp.	sol. $\text{HCl}$ , 17 Conc. $\text{H}_2\text{SO}_4$	black.....
36	.....	insoluble	.....	sol. $\text{Na}_2\text{S}$ , $\text{K}_2\text{S}$ ; insol. a.	.....
37	decomp.	soluble	.....	soluble alcohol, ether..	brown.....
					tablets.....

† Decomposes at 230°.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Aurichlorohydric Acid	HAuCl <sub>4</sub> .4H <sub>2</sub> O	412.07		
2	Auroauric bromide...	AuBr <sub>2</sub>	357.12		dec. 115°
3	chloride	AuCl <sub>2</sub>	268.10		dec. 250°
4	oxide	Au <sub>2</sub> O	410.4		dec. 250°
5	sulphide	AuS	229.26		dec. 140°
6	Aurobromhydric Acid	HAuBr <sub>4</sub> .5H <sub>2</sub> O	608.13		27°
7	Aurous bromide	AuBr	277.16		dec. 115°
8	chloride	AuCl	232.65		
9	cyanide	AuCN	223.24		decomp.
10	iodide	AuI	324.17		dec. 120°
11	oxide	Au <sub>2</sub> O	410.40		dec. 250°
12	sulphide *	Au <sub>2</sub> S	426.46		
13	Barium	Ba	137.4	3.78	850°
14	acetate	Ba(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> .H <sub>2</sub> O	273.46	2.02	decomp.
15	arsenate	Ba <sub>3</sub> (AsO <sub>4</sub> ) <sub>2</sub>	690.2		
16	boride	BaB <sub>6</sub>	203.4	4.36 <sup>15°</sup>	
17	bromate	Ba(BrO <sub>3</sub> ) <sub>2</sub> .H <sub>2</sub> O	411.34	3.820	decomp.
18	bromide	BaBr <sub>2</sub>	297.32	4.781 <sup>‡</sup>	880°
19	"	BaBr <sub>2</sub> .2H <sub>2</sub> O	333.35	3.852 <sup>‡</sup>	2H <sub>2</sub> O, 100°
20	carbide	BaC <sub>2</sub>	161.40	3.75	
21	carbonate	BaCO <sub>3</sub>	197.4	4.275	dec. 1450°
22	chlorate	Ba(ClO <sub>3</sub> ) <sub>2</sub> .H <sub>2</sub> O	322.32	3.179	414° †
23	chloride	BaCl <sub>2</sub>	208.3	3.856 <sup>‡</sup>	960°
24	"	BaCl <sub>2</sub> .2H <sub>2</sub> O	244.33	3.097 <sup>‡</sup>	860° †
25	chloroplatinate	BaPtCl <sub>6</sub> .4H <sub>2</sub> O	616.96	2.86	
26	chloroplatinite	BaPtCl <sub>6</sub> .3H <sub>2</sub> O	528.05	2.868	
27	chromate	BaCrO <sub>4</sub>	253.50	4.498 <sup>15°</sup>	
28	cyanide	Ba(CN) <sub>2</sub>	189.48		
29	dichromate	BaCr <sub>2</sub> O <sub>7</sub>	353.60		
30	"	BaCr <sub>2</sub> O <sub>7</sub> .2H <sub>2</sub> O	389.63		
31	dithionate	BaS <sub>2</sub> O <sub>6</sub> .2H <sub>2</sub> O	333.55	5.6	
32	ferrocyanide	Ba <sub>2</sub> Fe(CN) <sub>6</sub> .6H <sub>2</sub> O	595.04		
33	fluoride	BaF <sub>2</sub>	175.4	4.828	1280°
34	fluosilicate	BaSiF <sub>6</sub>	279.80	4.28 <sup>15°</sup>	
35	fluobromide	BaBr <sub>2</sub> .BaF <sub>2</sub>	472.72	4.96	
36	fluochloride	BaCl <sub>2</sub> .BaF <sub>2</sub>	383.7	4.51 <sup>18°</sup>	
37	fluoiodide	BaI <sub>2</sub> .BaF <sub>2</sub>	566.74	5.21	
38	formate	Ba(CHO <sub>2</sub> ) <sub>2</sub>	227.42	3.212	

\* For other compounds see "Gold."

† Anhydrous.



Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (Al.), Acids (a.), Alkalies (alk.), etc.	
1					
2		decomp.			black
3		decomp.			dark red
4		insoluble	insoluble	soluble cold HCl	olive brown
5		insoluble	insoluble	insol. acids; sol. (NH <sub>4</sub> ) <sub>2</sub> S	black
6		v. soluble			red crystals
7		insoluble		decomp. by acid	grayish yellow
8		insoluble	decomp.		yellowish white
9		insoluble	insoluble	insol. acids; sol. KCN	yellow crystals
10		insoluble	s. soluble	sol. excess KI	yellow
11		s. soluble	insoluble	sol. HI, alkalies	violet
12		insoluble		insoluble acids	black
13	vol. 950°	decomp.	decomp.	sol. al., a.; insol. b'z'l, petroleum	silvery crystals
14		62.9-3°	80.5 <sup>99</sup> °	insoluble alcohol	prisms
15		0.055		soluble acids, NH <sub>4</sub> Cl	
16		insoluble	insoluble	soluble HNO <sub>3</sub>	black regular
17		0.7717°	4.2100°		monoclinic
18		115.8°	184100°		
19		130°	204100°	v. soluble alcohol	monoclinic
20		dec. to C <sub>2</sub> H <sub>2</sub>		decomp. by acids	gray crystals
21		0.0022 <sup>20</sup> °	0.0065100°	sol. a., NH <sub>4</sub> Cl	rhombic
22		24.5°	145		monoclinic
23		30.9°	62.7	{ insol. al.; s. sol. HCl, HNO <sub>3</sub>	
24		36.2°	73.5		
25		soluble		decomp. by acids	red monoclinic
26		soluble		v. soluble 93% al.	[plates
27		0.0003818°	insoluble	soluble HCl, HNO <sub>3</sub>	yellow rhombic
28		8014°		1814° alcohol	
29		s. soluble		sol. hot conc. H <sub>2</sub> SO <sub>4</sub>	red monoc. pr.
30		decomp.			yellow needles
31		24.7518°	90.9100°		rhombic
32		0.115°	175°		yellow monoc.
33		0.16318°	s. soluble	soluble acids, NH <sub>4</sub> Cl	crystalline
34		0.02617°	0.09100°	insol. al.; s. sol. HCl, NH <sub>4</sub> Cl [HNO <sub>3</sub>	
35		decomp.	decomp.	insol. al.; sol. conc. HCl	plates
36		decomp.	decomp.	insol. al.; sol. conc. HCl, HNO <sub>3</sub> [HNO <sub>3</sub>	plates
37		decomp.	decomp.	insol. al.; sol. conc. HCl	plates
38		20		insoluble alcohol, ether	monoclinic

† Loses 2H<sub>2</sub>O at 100°.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Barium hexanitride.	BaN <sub>6</sub> .H <sub>2</sub> O	239.66		explodes
2	hydride.	BaH <sub>2</sub>	139.42	4.21 <sup>0</sup>	volatile
3	hydroxide.	Ba(OH) <sub>2</sub> .8H <sub>2</sub> O	315.54	1.656	78° *
4	hypophosphate.	Ba <sub>2</sub> P <sub>2</sub> O <sub>6</sub>	432.80		
5	hypophosphite.	Ba(H <sub>2</sub> PO <sub>2</sub> ) <sub>2</sub> .H <sub>2</sub> O	285.45	2.875	
6	iodate.	Ba(IO <sub>3</sub> ) <sub>2</sub> .H <sub>2</sub> O	505.36	5.23	H <sub>2</sub> O, 130°
7	iodide.	BaI <sub>2</sub>	391.34	4.917	539°-740°
8	manganate.	BaMnO <sub>4</sub>	256.4	4.85	
9	metatungstate.	BaW <sub>12</sub> O <sub>42</sub> .9H <sub>2</sub> O	1243.5	4.298	
10	nitrate.	Ba(NO <sub>3</sub> ) <sub>2</sub>	261.48	3.244 <sup>23</sup>	575°
11	nitrite.	Ba(NO <sub>2</sub> ) <sub>2</sub> .H <sub>2</sub> O	247.50		dec. 115°
12	oxalate.	BaC <sub>2</sub> O <sub>4</sub> .H <sub>2</sub> O	243.42	2.6578	
13	oxide.	BaO	153.40	4.73-5.46	BaO <sub>2</sub> , 450°
14	"	BaO	153.40	5.32-5.74	
15	perchlorate.	Ba(ClO <sub>4</sub> ) <sub>2</sub> .4H <sub>2</sub> O	408.36		†
16	periodate.	Ba <sub>5</sub> (IO <sub>6</sub> ) <sub>2</sub>	1132.9		
17	permanganate.	Ba(MnO <sub>4</sub> ) <sub>2</sub>	375.4		
18	peroxide.	BaO <sub>2</sub>	169.4	4.96	O, 450°
19	"	BaO <sub>2</sub> .8H <sub>2</sub> O	313.5		
20	persulphate.	Ba(SO <sub>4</sub> ) <sub>2</sub> .4H <sub>2</sub> O	401.58		
21	phosphate tri-.	Ba <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub>	602.2		
22	" mono-.	BaH <sub>4</sub> (PO <sub>4</sub> ) <sub>2</sub>	331.43	2.9	
23	" di-.	BaHPO <sub>4</sub>	233.41	4.165 <sup>15</sup>	
24	" pyro-.	Ba <sub>2</sub> P <sub>2</sub> O <sub>7</sub>	448.8	4.11 <sup>6</sup>	
25	platinocyanide.	BaPt(CN) <sub>4</sub> .4H <sub>2</sub> O	508.42	3.054	
26	selenate.	BaSeO <sub>4</sub>	280.60	4.75	
27	silicate.	BaSiO <sub>3</sub> .6H <sub>2</sub> O	321.9		
28	sulphate.	BaSO <sub>4</sub>	233.46	4.476 4.330	infusible
29	sulphate acid.	Ba(HSO <sub>4</sub> ) <sub>2</sub>	331.54		
30	sulphydrate.	Ba(SH) <sub>2</sub> .4H <sub>2</sub> O	275.60		
31	sulphide mono-.	BaS	169.46	4.25 <sup>15</sup>	infusible
32	" tri-.	BaS <sub>3</sub>	201.52		
33	" tetra-.	BaS <sub>4</sub> .H <sub>2</sub> O	283.66	2.98	dec. 300°
34	sulphite.	BaSO <sub>3</sub>	217.46		
35	sulphocyanate.	Ba(CNS) <sub>2</sub> .2H <sub>2</sub> O	289.63		
36	tartrate.	BaC <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .H <sub>2</sub> O	303.45	2.980 <sup>20.8</sup>	
37	thiosulphate.	BaS <sub>2</sub> O <sub>3</sub> .H <sub>2</sub> O	267.54	3.447	
38	Beryllium (See Glucinum)				
39	Bismuth	Bi	208.5	9.7474	269°

\* Loses 7H<sub>2</sub>O at 15°; 8H<sub>2</sub>O at red heat.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1		v. soluble	v. soluble		crystalline
2	1400°	decomp.	decomp.		crystalline
3	103°	515°	34100°	soluble al.; insol. ether.	tetragonal
4		s. soluble		soluble alcohol	needles
5		29	33	insoluble alcohol	monoclinic
6		0.0713.5°	0.15100°	insol. al.; sol. HCl, HNO <sub>3</sub>	monoclinic
7		1.69°	2.89106°	v. soluble alcohol	rhombic
8		insoluble		decomp. by acids	green hexag.
9		decomp.	v. soluble		tetragonal
10	decomp.	5.2°	32.2100°	insol. al.; s. sol. acids	regular
11		6820°		1.6, 94% alcohol	hexag. needles
12		0.009318°		sol. acids NH <sub>4</sub> Cl; insol. al.	
13		1.5°	90.880°	soluble HCl, HNO <sub>3</sub>	amorphous
14					regular
15		v. soluble		v. soluble alcohol	hexagonal
16		insoluble		soluble HNO <sub>3</sub>	
17		62.511°	72.425°		
18		insoluble	decomp.	soluble dilute acids	
19		insoluble	decomp.	soluble dilute acids	
20		52.2°		soluble alcohol	prisms
21		insoluble		soluble	
22		soluble		soluble acids	triclinic
23		0.01-.02		soluble acids, NH <sub>4</sub> salts	rhombic needles
24		0.01		soluble acids, NH <sub>4</sub> salts	amorphous
25		316°			gray to yel. mon.
26		0.0118	0.0138	insoluble HNO <sub>3</sub> ; sol. HCl	
27		soluble	decomp.	soluble HCl	rhombic
28		0.000172°	0.000334°	0.006, 3% HCl; sol. conc. H <sub>2</sub> SO <sub>4</sub>	rhombic
29					amorphous
30		soluble		insoluble alcohol	rhombic
31		decomp.		insoluble alcohol	white amorph.
32		soluble			yellow green
33		4115°	v. soluble	insoluble alcohol, CS <sub>2</sub>	red rhombic
34		0.019720°	0.0017780°	v. soluble HCl	hexagonal
35		soluble		3520°, 3879° alcohol	needles
36		0.02618°	0.02725°	0.03218° alcohol	
37		0.267517.5°		insoluble alcohol	
38					
39	1435°	insoluble	insoluble	[H <sub>2</sub> SO <sub>4</sub> , sol. HNO <sub>3</sub> , aq. r., conc.	[bohedral reddish rhom-

† The anhydrous salt melts at 505°.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water=1. Air=1 (A). H <sub>2</sub> =1 (D).	Melting Point, °C.
1	Bismuth bromide...	BiBr <sub>3</sub> .....	448.38	5.60	200°-215°
2	carbonate sub...	Bi <sub>2</sub> O <sub>3</sub> .CO <sub>2</sub> .H <sub>2</sub> O .....	527.02	6.86	decomp.
3	chloride di.....	BiCl <sub>2</sub> .....	279.4	.....	dec. 300°
4	“ tri.....	BiCl <sub>3</sub> .....	314.85	4.56 <sup>11°</sup>	227°
5	dichromate basic	(BiO) <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> .....	765.2	.....	.....
6	hydroxide.....	Bi(OH) <sub>3</sub> .....	259.52	.....	H <sub>2</sub> O, 100°
7	iodide.....	BiI <sub>3</sub> .....	589.41	5.65 <sup>20°</sup>	> 439°
8	nitrate.....	Bi(NO <sub>3</sub> ) <sub>3</sub> .5H <sub>2</sub> O .....	484.70	2.78	74°
9	“ sub.....	BiONO <sub>3</sub> .H <sub>2</sub> O.....	304.56	4.928 <sup>15°</sup>	dec. 260°
10	oxalate.....	Bi <sub>2</sub> (C <sub>2</sub> O <sub>4</sub> ) <sub>3</sub> .....	681.0	.....	.....
11	oxide tri.....	Bi <sub>2</sub> O <sub>3</sub> .....	465.00	8.8-9.0	820°-860°
12	“ tetra.....	Bi <sub>2</sub> O <sub>4</sub> .2H <sub>2</sub> O .....	517.03	5.6	O, 305°
13	“ penta.....	Bi <sub>2</sub> O <sub>5</sub> .....	497.00	.....	O, 150°
14	“ “.....	Bi <sub>2</sub> O <sub>5</sub> .H <sub>2</sub> O.....	515.02	5.917	H <sub>2</sub> O, 120°
15	oxybromide.....	BiOBr.....	304.46	8.082 <sup>15°</sup>	.....
16	oxychloride.....	BiOCl.....	259.95	7.717 <sup>15°</sup>	red heat
17	oxyfluoride.....	BiOF.....	243.5	7.55 <sup>20°</sup>	.....
18	oxyiodide.....	BiOI.....	351.47	7.922	.....
19	phosphate.....	BiPO <sub>4</sub> .....	303.5	.....	.....
20	selenide.....	Bi <sub>2</sub> Se <sub>3</sub> .....	654.6	6.82	decomp.
21	sulphate.....	Bi <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	705.18	.....	.....
22	sulphide.....	Bi <sub>2</sub> S.....	513.18	7.00-7.81	decomp.
23	Boric Acid.....	H <sub>3</sub> BO <sub>3</sub> .....	62.02	1.4347 <sup>15°</sup>	184°-186°
24	Boron.....	B.....	11.0	{ 2.45 2.53-2.68	infusible infusible
25	bromide.....	BBr <sub>3</sub> .....	250.88	2.650 <sup>‡</sup>	.....
26	carbide.....	B <sub>2</sub> C.....	78.0	2.51	.....
27	chloride.....	BCl <sub>3</sub> .....	117.35	1.434 <sup>‡</sup>	.....
28	fluoride.....	BF <sub>3</sub> .....	68.00	2.3 A.	-127°
29	hydride.....	BH <sub>3</sub> .....	14.02	.....	.....
30	iodide.....	BI <sub>3</sub> .....	391.91	3.350°	43°
31	oxide.....	B <sub>2</sub> O <sub>3</sub> .....	70.00	1.75-1.83	577°
32	phosphide.....	BP.....	42.00	.....	burns 200°
33	sulphide tri.....	B <sub>2</sub> S <sub>3</sub> .....	118.18	1.55	310°
34	“ penta.....	B <sub>2</sub> S <sub>5</sub> .....	182.30	1.85	390°
35	Borofluohydric Acid	HBFl.....	88.01	.....	.....
36	Bromic Acid.....	HBrO <sub>3</sub> .....	128.97	.....	dec. 100°
37	Bromine.....	Br <sub>2</sub> .....	159.92	3.1883°	-7.3°
38	chloride.....	BrClIOH <sub>2</sub> O.....	295.57	.....	7°

\* Loses 1½ H<sub>2</sub>O at 150°.† Loses 1½ H<sub>2</sub>O at 300°.

Number.	Boiling Point, C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acid (a.), Alkalies (alk.), etc.	
1	453°-498°	decomp.	.....	soluble ether, HBr. ....	yellow. ....
2	.....	insoluble	.....	sol. a.; insol. Na <sub>2</sub> CO <sub>3</sub> ..	.....
3	.....	decomp.	.....	.....	black. ....
4	435°-447°	decomp.	.....	soluble alcohol, acids ..	.....
5	.....	insoluble	insoluble	soluble acids; insol. alk.	orange red. ....
6	*	insoluble	.....	soluble acids; insol. alk.	.....
7	.....	insoluble	decomp.	35.20° alcohol; sol. HI, KI	black hexag. ....
8	dec. 75°-80°	decomp.	.....	soluble acids. ....	.....
9	.....	insoluble	.....	soluble acids. ....	hexag. plates. ....
10	.....	insoluble	insoluble	soluble acids. ....	.....
11	.....	insoluble	.....	soluble acids; insol. alk.	yellow tetrag. ....
12	.....	insoluble	.....	soluble acids. ....	brownish yel. ....
13	O <sub>2</sub> , 357°	insoluble	.....	soluble a., conc. KOH. ....	brown. ....
14	O <sub>2</sub> , 357°	insoluble	.....	soluble a., conc. KOH. ....	red. ....
15	.....	insoluble	.....	soluble acids. ....	.....
16	.....	insoluble	.....	sol. a.; insol. H <sub>2</sub> C <sub>4</sub> H <sub>4</sub> O <sub>4</sub>	crystalline. ....
17	.....	insoluble	.....	soluble acids. ....	crystalline. ....
18	.....	insoluble	.....	soluble acids; insol. KI	red crystalline. ....
19	.....	insoluble	insoluble	sol. HCl; insol. dil. HNO <sub>3</sub>	.....
20	.....	insoluble	.....	insoluble alkalies. ....	black. ....
21	.....	.....	decomp.	soluble acids. ....	needles. ....
22	.....	insoluble	.....	soluble HNO <sub>3</sub> . ....	brown rhomb. ....
23	†	3.918°	34.100°	{ 0.2425° ether, sol. al. 2820°, 72100° glycerene	triclinic mono- clinic
24	sublimes	insoluble	insoluble	insol. al., ether; sol. conc.	green amorph.
25	3500°	insoluble	insoluble	HNO <sub>3</sub> , conc. H <sub>2</sub> SO <sub>4</sub> .	monoclinic
26	90.5°	decomp.	.....	decomp. by alcohol. ....	.....
27	.....	insoluble	insoluble	insol. a.; dec. fused KNO <sub>3</sub>	black crystals
28	18.2°	decomp.	.....	decomp. by alcohol. ....	.....
29	-101°	10570°	846	decomp. by alcohol. ....	.....
30	.....	s. soluble	.....	soluble NH <sub>4</sub> OH. ....	.....
31	210°	decomp.	.....	v. soluble CS <sub>2</sub> , CCl <sub>4</sub> . ....	cryst. plates ..
32	high temp.	1.1°	16.4102°	soluble al., conc. a. ....	.....
33	.....	insoluble	insoluble	insoluble, all solvent. ....	.....
34	.....	decomp.	.....	s. soluble, PCl <sub>3</sub> , SCl <sub>2</sub> . ....	crystals. ....
35	.....	decomp.	.....	.....	crystalline. ....
36	130°	soluble	.....	.....	.....
37	.....	v. soluble	decomp.	.....	.....
38	5.9°	4.170°	3.4950°	sol. alk., CS <sub>2</sub> , ether, al., CHCl <sub>3</sub>	brown red. .... [crystals
39	†	soluble	.....	soluble CS <sub>2</sub> , ether. ....	yellow brown

† Decomposes above 10°.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water=1. Air=1 (A). H <sub>2</sub> =1 (D).	Melting Point, °C.
1	Bromine hydrate . . .	Br <sub>2</sub> .10H <sub>2</sub> O . . . . .	340.08	.....	dec. 15°
2	Cadmium . . . . .	Cd . . . . .	112.4	8.642 <sup>17°</sup>	321.7°
3	acetate . . . . .	Cd(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> .3H <sub>2</sub> O . . . . .	284.50	2.01	.....
4	borotungstate . . . . .	Cd <sub>2</sub> B <sub>2</sub> W <sub>2</sub> O <sub>22</sub> .18H <sub>2</sub> O . . . . .	2739.1	.....	.....
5	bromate . . . . .	Cd(BrO <sub>3</sub> ) <sub>2</sub> .H <sub>2</sub> O . . . . .	398.34	3.758	decomp.
6	bromide . . . . .	CdBr <sub>2</sub> . . . . .	272.32	5.192 <sup>14</sup>	57°
7	carbonate . . . . .	CdCO <sub>3</sub> . . . . .	172.40	4.258	decomp.
8	chlorate . . . . .	Cd(ClO <sub>3</sub> ) <sub>2</sub> .2H <sub>2</sub> O . . . . .	315.33	.....	80°
9	chloride . . . . .	CdCl <sub>2</sub> . . . . .	183.30	4.05 <sup>14</sup>	590°
10	" . . . . .	CdCl <sub>2</sub> .2H <sub>2</sub> O . . . . .	219.33	3.327	.....
11	cyanide . . . . .	Cd(CN) <sub>2</sub> . . . . .	164.48	.....	dec. 200°
12	ferrocyanide . . . . .	Cd <sub>2</sub> Fe(CN) <sub>6</sub> . . . . .	436.94	.....	.....
13	fluoride . . . . .	CdF <sub>2</sub> . . . . .	150.40	6.64	520
14	formate . . . . .	Cd(CHO <sub>2</sub> ) <sub>2</sub> .H <sub>2</sub> O . . . . .	220.43	2.45	decomp.
15	hydroxide . . . . .	Cd(OH) <sub>2</sub> . . . . .	146.42	4.79 <sup>15°</sup>	H <sub>2</sub> O, 300°
16	iodate . . . . .	Cd(IO <sub>3</sub> ) <sub>2</sub> . . . . .	462.34	5.644-5.98	decomp.
17	iodide . . . . .	CdI <sub>2</sub> . . . . .	366.34	5.644	350°
18	lactate . . . . .	Cd(C <sub>3</sub> H <sub>5</sub> O <sub>3</sub> ) <sub>2</sub> . . . . .	302.48	.....	.....
19	nitrate . . . . .	Cd(NO <sub>3</sub> ) <sub>2</sub> .4H <sub>2</sub> O . . . . .	308.54	2.455	59.5°
20	oxalate . . . . .	CdC <sub>2</sub> O <sub>4</sub> .3H <sub>2</sub> O . . . . .	254.45	3.32 <sup>18°</sup> *	decomp.
21	oxide . . . . .	CdO . . . . .	128.40	6.95	infusible
22	" . . . . .	CdO . . . . .	128.40	8.11	"
23	oxide sub- . . . . .	Cd <sub>2</sub> O . . . . .	465.6	8.21-8.18 <sup>19°</sup>	decomp.
24	permanganate . . . . .	Cd(MnO <sub>4</sub> ) <sub>2</sub> .6H <sub>2</sub> O . . . . .	458.50	.....	decomp.
25	phosphate . . . . .	Cd <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> . . . . .	527.2	.....	.....
26	potassium iodide . . . . .	CdI <sub>2</sub> .2KI.2H <sub>2</sub> O . . . . .	734.59	3.359	.....
27	selenate . . . . .	CdSeO <sub>4</sub> .2H <sub>2</sub> O . . . . .	291.63	3.632	.....
28	sulphate . . . . .	CdSO <sub>4</sub> . . . . .	208.46	4.72 <sup>15°</sup>	1000°
29	" . . . . .	3CdSO <sub>4</sub> .8H <sub>2</sub> O . . . . .	769.51	3.05	.....
30	" . . . . .	CdSO <sub>4</sub> .4H <sub>2</sub> O . . . . .	280.52	3.05	.....
31	sulphide artificial . . . . .	CdS . . . . .	144.46	3.9-4.8	white heat
32	" greenockite . . . . .	CdS . . . . .	144.46	4.8-4.9	.....
33	sulphite . . . . .	CdSO <sub>3</sub> . . . . .	192.46	.....	decomp.
34	tungstate . . . . .	CdWO <sub>4</sub> . . . . .	360.40	.....	.....
35	Caesium . . . . .	Cs . . . . .	132.9	2.366°	26.37°
36	bromide . . . . .	CsBr . . . . .	212.86	4.455 <sup>21.4°</sup>	.....
37	bromoiodide . . . . .	CsBrI <sub>2</sub> . . . . .	466.80	.....	.....
38	carbonate . . . . .	Cs <sub>2</sub> CO <sub>3</sub> . . . . .	325.80	.....	.....
39	chloraurate . . . . .	CsAuCl <sub>4</sub> . . . . .	471.90	.....	.....
40	chloride . . . . .	CsCl . . . . .	168.35	3.972 <sup>14</sup>	631°
41	chloroplatinate . . . . .	Cs <sub>2</sub> PtCl <sub>6</sub> . . . . .	673.30	.....	.....

\* Anhydrous.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1		soluble			red octahedra.
2	778°	insoluble	insoluble	sol. a., $\text{NH}_4\text{NO}_3$ , . . . . .	crystalline. . . . .
3		v. soluble			monoclinic. . . . .
4		1250 <sup>19°</sup>			
5		125 <sup>17°</sup>			triclinic. . . . .
6	806°–812°	106	161 <sup>100°</sup>	soluble alcohol, ether . .	crystalline. . . . .
7		insoluble	insoluble	sol. acid, $\text{NH}_4$ salts . .	
8		soluble	soluble	soluble acids. . . . .	
9	861°–954°	140 <sup>20°</sup>	150 <sup>100°</sup>	1.52 <sup>15°</sup> alcohol . . . . .	
10		168 <sup>20°</sup>	180 <sup>100°</sup>	2.05 <sup>15°</sup> methyl alcohol .	
11		1.7 <sup>15°</sup>		sol. KCN, $\text{NH}_4\text{OH}$ , a. . .	crystalline. . . . .
12		insoluble		sol. HCl. . . . .	
13	1000°	soluble		insol. al.; sol. acids. . .	crystalline. . . . .
14		v. soluble		[salts	monoclinic. . . . .
15		insoluble		insol. alk.; sol. a., $\text{NH}_4$	hexagonal. . . . .
16		s. soluble	s. soluble	soluble $\text{HNO}_3$ , $\text{NH}_4\text{OH}$	crystalline. . . . .
17	708°–719°	80.1°	128 <sup>100°</sup>	sol. al., ether, $\text{NH}_4\text{OH}$ .	brownish. . . . .
18		10	12.5	insoluble alcohol. . . . .	needles. . . . .
19	132°	v. soluble		sol. al.; insol. $\text{HNO}_3$ . . .	prism. needles.
20		0.008	0.009	sol. a., $\text{NH}_3$ aq. . . . .	
21		insoluble	insoluble	{ soluble acid, $\text{NH}_4$ salts	brown amorph.
22		insoluble	insoluble	{ insol. alk. . . . .	regular. . . . .
23				decomp. by alk., acids .	green amorph.
24		v. soluble			
25		insoluble		soluble $\text{NH}_4$ salts, acids.	amorphous . . . . .
26		137 <sup>15°</sup>		71 <sup>15°</sup> al.; 42 <sup>15°</sup> ether. . .	
27		v. soluble			rhombic. . . . .
28		59 <sup>23°</sup>			
29		76 <sup>13°</sup>			monoclinic. . . . .
30		79 <sup>23°</sup>		insoluble alcohol. . . . .	[for amorph.
31		{ 0.4 to 1.1	coloidal sol.	v. s. sol. $\text{NH}_4\text{OH}$ ; sol. a.	yellow hexag. . . . .
32		{ insoluble		soluble conc. acids. . . .	yellow hexag. . . . .
33		s. soluble	insoluble	insol. al.; sol. a., $\text{NH}_4\text{OH}$	crystalline. . . . .
34		0.05		soluble $\text{NH}_4\text{OH}$ . . . . .	yellow crystals
35	670°	decomp.	decomp.	soluble acids, alcohol . .	silvery. . . . .
36		soluble		decomp. by alcohol . . . .	
37		decomp.		soluble alcohol. . . . .	
38	dec. 610°	deliques.	v. soluble	11.1 <sup>19°</sup> , 20.1 <sup>79°</sup> alcohol.	
39		0.5 <sup>10°</sup>	38 <sup>100°</sup>	soluble alcohol. . . . .	
40		61.9°	67.4 <sup>40°</sup>	soluble alcohol. . . . .	regular. . . . .
41		0.024 <sup>0°</sup>	0.377 <sup>100°</sup>		yellow regular.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Caesium cyanide.....	CsCN .....	158.94		
2	fluosilicate.....	Cs <sub>2</sub> SiF <sub>6</sub> .....	408.2	3.3764†	
3	hydride.....	CsH.....	133.91	2.7	decomp.
4	hydroxide.....	CsOH.....	149.91	4.018	<red heat
5	iodide.....	CsI.....	259.87	4.50822.8°	621°
6	mercuric bromide.....	CsBr.2HgBr <sub>2</sub> .....	932.70		
7	mercuric chloride.....	CsCl.HgCl <sub>2</sub> .....	439.25		
8	nitrate.....	CsNO <sub>3</sub> .....	194.94	3.687‡	414°
9	pentasulphide.....	Cs <sub>2</sub> S <sub>5</sub> .....	426.1	2.80616°	202°-205°
10	perchlorate.....	CsClO <sub>4</sub> .....	232.35		decomp.
11	permanganate.....	CsMnO <sub>4</sub> .....	251.9	3.597410.3°	decomp.
12	silicotungstate.....	Cs <sub>2</sub> SiW <sub>12</sub> O <sub>42</sub> .....	3971.6		
13	sulphate.....	Cs <sub>2</sub> SO <sub>4</sub> .....	361.86	4.2434‡	
14	sulphide.....	Cs <sub>2</sub> S.4H <sub>2</sub> O.....	369.92		
15	tartrate acid.....	CsHC <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .....	281.94		
16	Calcium.....	Ca.....	40.1	1.544629.2°	780°-810°
17	acetate.....	Ca(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> .H <sub>2</sub> O.....	176.16		decomp.
18	aluminate.....	CaAl <sub>2</sub> O <sub>4</sub> .....	158.3	3.67120°	
19	ammonium arsenate.....	NH <sub>4</sub> Ca.AsO <sub>4</sub> .6H <sub>2</sub> O.....	305.27	1.90515°	decomp.
20	ammonium..... phosphate	CaNH <sub>4</sub> PO <sub>4</sub> .7H <sub>2</sub> O.....	279.28	1.56115°	decomp.
21	arsenide.....	Ca <sub>3</sub> As <sub>2</sub> .....	270.30	2.515°	decomp.
22	borate.....	Ca(BO <sub>2</sub> ) <sub>2</sub> .2H <sub>2</sub> O.....	162.13		
23	boride.....	CaB <sub>6</sub> .....	106.10	2.3315°	
24	bromide.....	CaBr <sub>2</sub> .....	200.02	3.420°	485°-760°
25	".....	CaBr <sub>2</sub> .6H <sub>2</sub> O.....	308.3		34.2°
26	carbide.....	CaC <sub>2</sub> .....	64.10	2.2218°	
27	carbonate.....	CaCO <sub>3</sub> .....	100.10	2.72-2.95	dec. 825°
28	chlorate.....	Ca(ClO <sub>3</sub> ) <sub>2</sub> .....	207.00		>100°
29	chloride.....	CaCl <sub>2</sub> .....	111.00	2.2620°	710°-806°
30	".....	CaCl <sub>2</sub> .H <sub>2</sub> O.....	129.02		
31	".....	CaCl <sub>2</sub> .6H <sub>2</sub> O.....	219.10	1.654	29.92°
32	chromate.....	CaCrO <sub>4</sub> .2H <sub>2</sub> O.....	192.23		2H <sub>2</sub> O, 200°
33	citrate.....	Ca <sub>3</sub> (C <sub>6</sub> H <sub>7</sub> O <sub>7</sub> ) <sub>2</sub> .4H <sub>2</sub> O.....	574.48		decomp.
34	ferrocyanide.....	Ca <sub>2</sub> Fe(CN) <sub>6</sub> .12H <sub>2</sub> O.....	548.53		
35	fluoride.....	CaF <sub>2</sub> .....	78.10	3.15-3.18	902-1330°
36	fluosilicate.....	CaSiF <sub>6</sub> .....	183.50	2.66217.5°	
37	formate.....	Ca(CHO <sub>2</sub> ) <sub>2</sub> .....	130.12	2.021	decomp.
38	hydride.....	CaH <sub>2</sub> .....	42.12	1.7	
39	hydroxide.....	Ca(OH) <sub>2</sub> .....	74.12	2.078	



Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1				insoluble alcohol.	
2		60 <sup>17°</sup>	v. soluble	insoluble alcohol.	regular
3		decomp.	decomp.	decomp. by acids.	crystals
4		soluble	soluble	soluble alcohol.	grayish
5					
6		0.807 <sup>16°</sup>		s. soluble alcohol.	
7		1.406 <sup>17°</sup>		insoluble alcohol.	
8	decomp.	10.63 <sup>2°</sup>		s. soluble alcohol.	cubic
9				soluble alcohol.	
10		insoluble		insol. absolute alcohol.	
11		soluble			
12		0.005 <sup>20°</sup>	0.52 <sup>100°</sup>	insol. alcohol, HCl.	
13		158.7- <sup>2°</sup>		insoluble alcohol.	needles
14		v. soluble	v. soluble		crystals
15		9.7 <sup>25°</sup>	98 <sup>100°</sup>	[benzol]	[or rhombohed
16		decomp.	decomp.	sol. a., sodium; insol.	silvery hexag.
17		v. soluble		s. soluble alcohol.	needles. [dles
18		decomp.		insol. benzine; sol. HCl.	prismatic nee-
19		0.02	soluble	insol. NH <sub>4</sub> OH; sol. NH <sub>4</sub> Cl	monocl. plates.
20		insoluble	insoluble	soluble acids.	monoclinic
21		decomp.	decomp.	soluble acids.	reddish cryst.
22		s. soluble		soluble acids, NH <sub>4</sub> salts	
23		insoluble	insoluble	soluble HNO <sub>3</sub> .	black regular
24	806°-812°	125 <sup>0°</sup>	312 <sup>105°</sup>	v. soluble alcohol.	needles
25	149°-150°	192.5 <sup>0°</sup>	481 <sup>105°</sup>		
26		decomp. to	C <sub>2</sub> H <sub>2</sub>		crystalline
27		0.0013	0.088	0.1 CO <sub>2</sub> aq.; sol. a., NH <sub>4</sub> Cl	rhombic *
28		v. soluble		soluble alcohol.	rhombic
29		49.6 <sup>0°</sup>	154 <sup>99°</sup>	soluble alcohol.	
30		57.9 <sup>0°</sup>	179 <sup>99°</sup>	soluble alcohol.	
31	129°-130°	96.2 <sup>0°</sup>	300 <sup>99°</sup>	soluble alcohol.	hexagonal
32		0.41 <sup>14°</sup>	soluble	sol. alcohol, acids.	yellow prisms
33		0.085 <sup>18°</sup>	0.096 <sup>25°</sup>	0.0065 <sup>18°</sup> alcohol	needles
34			50 <sup>90°</sup>		triclinic
35		0.037 <sup>15.5°</sup>		s. soluble conc. acids.	regular
36		s. soluble		soluble HF, HCl, al.	
37		10 to 12.5		insoluble alcohol.	rhombic
38		decomp.	decomp.	insol. benzine; dec. by a.	crystalline
39		0.17 <sup>0°</sup>	0.08 <sup>100°</sup>		hexagonal

\* Also hexagonal or rhombohedral.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
<b>Calcium</b>					
1	hypochlorite . . . . .	Ca(ClO) <sub>2</sub> .4H <sub>2</sub> O . . . . .	215.06		decomp.
2	hypophosphate . . . . .	Ca <sub>2</sub> P <sub>2</sub> O <sub>6</sub> .2H <sub>2</sub> O . . . . .	274.23		
3	hypophosphite . . . . .	Ca(H <sub>2</sub> PO <sub>3</sub> ) <sub>2</sub> . . . . .	170.13		
4	iodate . . . . .	Ca(IO <sub>3</sub> ) <sub>2</sub> . . . . .	390.04		decomp.
5	iodide . . . . .	CaI <sub>2</sub> . . . . .	294.04	4.920°	631°-740°
6	" . . . . .	CaI <sub>2</sub> .6H <sub>2</sub> O . . . . .	402.14		42°
7	lactate . . . . .	Ca(C <sub>3</sub> H <sub>5</sub> O <sub>2</sub> ) <sub>2</sub> .5H <sub>2</sub> O . . . . .	276.26		3H <sub>2</sub> O, 100°
8	nitrate . . . . .	Ca(NO <sub>3</sub> ) <sub>2</sub> . . . . .	164.18	2.36	561°-499°
9	" . . . . .	Ca(NO <sub>3</sub> ) <sub>2</sub> .4H <sub>2</sub> O . . . . .	236.24	1.82	44°
10	nitrid . . . . .	Ca <sub>3</sub> N <sub>2</sub> . . . . .	148.38	2.6317°	1200°
11	nitrite . . . . .	Ca(NO <sub>2</sub> ) <sub>2</sub> .H <sub>2</sub> O . . . . .	150.20		
12	oxalate . . . . .	CaC <sub>2</sub> O <sub>4</sub> .H <sub>2</sub> O . . . . .	146.12	2.24° *	decomp.
13	oxide . . . . .	CaO . . . . .	56.10	3.15-3.40	infusible
14	permanganate . . . . .	Ca(MnO <sub>4</sub> ) <sub>2</sub> .4H <sub>2</sub> O . . . . .	330.16		decomp.
15	peroxide . . . . .	CaO <sub>2</sub> .8H <sub>2</sub> O . . . . .	216.23		8H <sub>2</sub> O, 130°
16	phosphate . . . . .	Ca <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> . . . . .	310.30	3.18	
17	" di- . . . . .	CaHPO <sub>4</sub> .2H <sub>2</sub> O . . . . .	172.14	2.31715°	decomp.
18	" mono- . . . . .	CaH <sub>2</sub> (PO <sub>4</sub> ) <sub>2</sub> .H <sub>2</sub> O . . . . .	252.15	2.02	H <sub>2</sub> O, 100°
19	" pyro- . . . . .	Ca <sub>2</sub> P <sub>2</sub> O <sub>7</sub> .4H <sub>2</sub> O . . . . .	326.26		
20	phosphide . . . . .	Ca <sub>3</sub> P <sub>2</sub> . . . . .	182.30	2.5115°	dif. fusible
21	phosphite . . . . .	2CaHPO <sub>3</sub> .3H <sub>2</sub> O . . . . .	294.26		
22	plumbate . . . . .	Ca <sub>3</sub> PbO <sub>4</sub> . . . . .	351.1		
23	plumbite . . . . .	CaPbO <sub>2</sub> . . . . .	279.0		
24	potassium sulphate . . . . .	CaK <sub>2</sub> (SO <sub>4</sub> ) <sub>2</sub> .H <sub>2</sub> O . . . . .	328.54	2.617°	
25	salicylate . . . . .	Ca(C <sub>7</sub> H <sub>5</sub> O <sub>3</sub> ) <sub>2</sub> .2H <sub>2</sub> O . . . . .	350.21		
26	silicate . . . . .	CaSiO <sub>3</sub> . . . . .	116.50	2.88	>1400°
27	silicide . . . . .	CaSi <sub>2</sub> . . . . .	96.9	2.5	✓ . . . . .
28	sulphate . . . . .	CaSO <sub>4</sub> . . . . .	136.16	2.964	
29	" (gypsum) . . . . .	CaSO <sub>4</sub> .2H <sub>2</sub> O . . . . .	172.19	2.32	2H <sub>2</sub> O, 80°
30	sulphydrate . . . . .	Ca(SH) <sub>2</sub> .6H <sub>2</sub> O . . . . .	214.33		dec. 15-18
31	sulphide . . . . .	CaS . . . . .	72.16	2.815°	fusible
32	sulphite . . . . .	CaSO <sub>3</sub> .2H <sub>2</sub> O . . . . .	156.19		2H <sub>2</sub> O, 100°
33	sulphocarbonate . . . . .	CaCS <sub>3</sub> . . . . .	148.28		
34	sulphocyanate . . . . .	Ca(CNS) <sub>2</sub> .3H <sub>2</sub> O . . . . .	210.35		
35	tartrate . . . . .	CaC <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .4H <sub>2</sub> O . . . . .	260.20		decomp.
36	thiosulphate . . . . .	CaS <sub>2</sub> O <sub>3</sub> .6H <sub>2</sub> O . . . . .	260.32	1.872	
37	tungstate . . . . .	CaWO <sub>4</sub> . . . . .	288.1	6.062	
38	Carbon amorphous . . . . .	C . . . . .	12.00	1.75-2.10	{ sublimes at 3500°
39	" graphite . . . . .	C . . . . .	12.00	2.10-2.585	
40	" diamond . . . . .	C . . . . .	12.00	3.47-3.5585	

\* Density of the anhydrous salt.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	deliques.	decomp.			
2	insoluble			soluble $H_4P_2O_6$ , HCl	
3	17			insoluble alcohol	monoclinic
4	$0.4^{15^\circ}$	$1.33^{100^\circ}$		soluble $HNO_3$	rhombic
5	$708^\circ-719^\circ$	$192^\circ$	$435^{92^\circ}$	soluble acids, al.	plates
6	$160^\circ$	$263^\circ$	$586^{92^\circ}$		
7		10.5		insol. ether; sol. alcohol	
8		$93.1^\circ$	$351.2^{152^\circ}$	$14^{15}$ alcohol; sol. amyl. al	prisms
9	$132^\circ$	$134^\circ$	$506^{152^\circ}$	0.8 alcohol	monoclinic
10	decomp.	decomp.		sol. dil. acids; insol. ab. al.	brown crystals
11	deliques.	v. soluble		insoluble alcohol	prisms
12	$0.00068^{25^\circ}$	$0.0014^{95^\circ}$		sol. a.; insol. $H_2C_2H_3O_2$	octahedral
13	$0.13^\circ$	$0.06^{100^\circ}$		soluble acids	regular
14	$331^{14^\circ}$	$388^{25^\circ}$		[ $NH_4$ salts	purple prisms
15	s. soluble	decomp.		insol. al., ether; sol. a.,	tetragonal
16	$0.003-0.008$	decomp.		soluble acids; insol. al.	amorphous
17	0.028	decomp.		insol. al.; sol. $NH_4C_6H_7O_7$	monocl. plates
18	dec. $200^\circ$	$4^{15^\circ}$	decomp.		rhombic
19	s. soluble			soluble a.; insol. $NH_4Cl$	crystalline
20	decomp.			insol. al., ether; sol. dil. a	red crystals
21	s. soluble	decomp.		sol. $NH_4Cl$ ; insol. al.	
22	insoluble			soluble acids	brown crystals
23	s. soluble				crystalline
24	0.25	decomp.		soluble acids	monoclinic
25	v. soluble			soluble alcohol	octahedral
26	s. soluble			soluble HCl	monocl. or hex-
27	insoluble				[agonal
28	$0.179^{90^\circ}$	$0.178^{100^\circ}$	}	sol. a., $Na_2S_2O_3$ , $NH_4$ salts	rhombic
29	$0.241^{90^\circ}$	$0.222^{100^\circ}$		sol. HCl, NaCl, glycerine	monoclinic
30	v. soluble			soluble alcohol	prismatic
31	$0.15^{10^\circ}$	$0.33^{90^\circ}$		soluble acids	regular
32	$0.125^\circ$			soluble $H_2SO_3$	crystalline
33	soluble			soluble alcohol	yellow
34	deliques.	v. soluble		v. soluble alcohol	crystalline
35	$0.016^{15^\circ}$	$0.3^{100^\circ}$		s. soluble alcohol	trimetr. prisms
36	$100^{30^\circ}$	decomp.		insoluble alcohol	trigonal
37	0.2			insoluble a.; sol. $NH_4Cl$	tetragonal
38	insoluble	insoluble	}	insoluble in acids	black amorph.
39	insoluble	insoluble		alkalies; soluble in...	black hexag.
40	insoluble	insoluble		molten metals	regular

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water=1. Air=1 (A). H <sub>2</sub> =1 (D).	Melting Point, °C.
1	Carbon bromide di-	C <sub>2</sub> Br <sub>4</sub>	343.84		53°
2	bromide tri-	C <sub>2</sub> Br <sub>6</sub>	503.76		
3	" tetra-	CBr <sub>4</sub>	331.84	3.4214°	92°
4	chloride di-	C <sub>2</sub> Cl <sub>4</sub>	165.80	1.6220°	
5	" tri-	C <sub>2</sub> Cl <sub>6</sub>	236.70	{ 1.6298 8.15 A	182°
6	" tetra-	CCl <sub>4</sub>	153.80	1.5817 <sup>4</sup>	-23.77°
7	dioxide gaseous	CO <sub>2</sub>	44.00	1.53A	
8	" liquid	CO <sub>2</sub>	44.00	1.057-34°	-65°
9	" solid	CO <sub>2</sub>	44.00	1.56-79°	-65°
10	disulphide	CS <sub>2</sub>	76.12	1.292 <sup>2</sup> 2.63A	-110°
11	iodide	CI <sub>4</sub>	519.88	4.32 <sup>20.2°</sup>	decomp.
12	monoxide	CO	28.00	0.9670A	-199°
13	monosulphide	CS	44.06	1.66	-207°
14	oxybromide	COBr <sub>2</sub>	187.92	2.48°	decomp.
15	oxychloride (phosgene)	COCl <sub>2</sub>	98.90	1.432°	
16	oxysulphide	COS	60.06	{ 2.10 A. 30.4 D.	decomp.
17	silicide	CSi <sub>2</sub>	68.8	2.5	
18	thionyl chloride	CSCl <sub>2</sub>	114.96	1.5085 <sup>15°</sup>	
19	" perchloride	CSCl <sub>4</sub>	185.86	1.712 <sup>12.8°</sup>	
20	Cerium	Ce	140.25	7.0424	623°
21	Ceric carbide	CeC <sub>2</sub>	164.25	5.23	
22	fluoride	CeF <sub>3</sub> ·H <sub>2</sub> O	234.27		decomp.
23	hydroxide	2CeO <sub>2</sub> ·3H <sub>2</sub> O	398.55		
24	nitrate	Ce(NO <sub>3</sub> ) <sub>4</sub>	388.41		
25	oxide	CeO <sub>2</sub>	172.25	7.65	
26	peroxide	CeO <sub>3</sub>	188.25		
27	silicide	CeSi <sub>2</sub>	197.05	5.67 <sup>17°</sup>	
28	sulphate	Ce(SO <sub>4</sub> ) <sub>2</sub> ·4H <sub>2</sub> O	404.43		
29	Cerous acetate	Ce <sub>2</sub> (C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>6</sub> ·3H <sub>2</sub> O	688.69		3H <sub>2</sub> O, 115°
30	bromide	CeBr <sub>3</sub> ·H <sub>2</sub> O	398.15		decomp.
31	carbonate	Ce <sub>2</sub> (CO <sub>3</sub> ) <sub>3</sub> ·9H <sub>2</sub> O	622.64		decomp.
32	chloride	CeCl <sub>3</sub>	246.60	3.88 <sup>15.5</sup> <sub>15.5</sub>	v. fusible
33	fluoride	CeF <sub>3</sub> · $\frac{1}{2}$ H <sub>2</sub> O	206.26		
34	hydroxide	Ce <sub>2</sub> O <sub>3</sub> ·6H <sub>2</sub> O	436.60		
35	iodide	CeI <sub>3</sub> ·9H <sub>2</sub> O	683.30		
36	nitrate	Ce(NO <sub>3</sub> ) <sub>3</sub> ·6H <sub>2</sub> O	435.33		3H <sub>2</sub> O, 150°
37	oxalate	Ce <sub>2</sub> (C <sub>2</sub> O <sub>4</sub> ) <sub>3</sub> ·9H <sub>2</sub> O	706.64		decomp.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1					
2					
3	189.5°	insoluble		sol. CS <sub>2</sub> ; insol. al., ether	
4	121°			sol. al., ether, CHCl <sub>3</sub>	tablets
5	187°	insoluble		soluble alcohol, ether	rhombic, triclinic or reg.
6	76.74°	insoluble			
7		179.67 c.c. <sup>00</sup>	90.14 c.c. <sup>20</sup>	283 c.c. <sup>22.6°</sup> al., sol. alk.	
8	-78.2°	insoluble		soluble alcohol, ether	
9	-78.2°				crystalline
10	46.2°	0.2°	0.014 <sup>50°</sup>	soluble alcohol, ether	
11			decomp.	soluble al., CS <sub>2</sub> , ether	octahedra
12	-190°	0.0287 <sup>6°</sup>	.02315 <sup>18.5°</sup>	0.20566 <sup>16°</sup> al. sol. Cu <sub>2</sub> Cl <sub>2</sub>	
13	200°	insoluble		insol. al.; sol. CS <sub>2</sub> , ether	red powder
14	63-66°				
15	8.2°	decomp.		sol. gl. ac. H <sub>2</sub> C <sub>2</sub> O <sub>4</sub> ; dec. al	
16	-47°	80 c.c. <sup>13.5°</sup>		v. soluble alcohol, alk.	
17		decomp.	decomp.	insol. al., ether; sol. conc.	grayish cryst.
18	70°			[HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub>	golden red
19	146-147°		decomp.		golden yellow
20		insoluble	insoluble	sol. dil. a.; insol. conc. a.	steel gray
21		decomp.	decomp.	soluble acids	reddish hexag.
22		insoluble			amorphous
23		soluble acids	insol. alk.	s. sol. alk., carbonate aq	
24		deliques.	decomp.	soluble alcohol	reddish yellow
25		insoluble	insoluble	sol. conc. H <sub>2</sub> SO <sub>4</sub>	yellow tesseral
26					red
27		insoluble			
28		soluble			yellow needles
29	decomp.	soluble			needles
30		deliques.		soluble alcohol	needles
31		insoluble		soluble (NH <sub>4</sub> ) <sub>2</sub> CO <sub>3</sub>	
32		100	decomp.	30 alcohol	crystals
33		insoluble			
34		sol. acids	insol. alk.	sol. (NH <sub>4</sub> ) <sub>2</sub> CO <sub>3</sub> ; insol. alk.	
35		soluble		soluble alcohol	crystalline
36*		deliques.	v. soluble	50 alcohol	red crystals
37		insoluble		insoluble oxalic acid	

\* Decomposes at 200°.

Number	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Cerous oxide .....	Ce <sub>2</sub> O <sub>3</sub> .....	328.50	6.9-7.0 •	.....
2	oxychloride .....	Ce <sub>2</sub> O <sub>3</sub> .2CeCl <sub>3</sub> .....	821.7	.....	.....
3	phosphate .....	CePO <sub>4</sub> .....	235.25	3.8	.....
4	sulphate .....	Ce <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	568.68	3.912	.....
5	" .....	Ce <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .8H <sub>2</sub> O .....	712.81	3.220	8H <sub>2</sub> O, 630°
6	sulphide .....	Ce <sub>2</sub> S <sub>3</sub> .....	376.68	5.020 <sup>110°</sup>	decomp.
7	Chloric Acid .....	HClO <sub>3</sub> .7H <sub>2</sub> O .....	210.57	1.282 <sup>14°</sup>	< -20°
8	Chlorine .....	Cl <sub>2</sub> .....	70.90	2.491 <sup>0°A</sup> .	-102°
9	hydrate .....	Cl.5H <sub>2</sub> O .....	125.53	1.23	-50°
10	oxide mon- .....	Cl <sub>2</sub> O .....	86.90	2.977A.	-20°
11	" di- or per- .....	ClO <sub>2</sub> .....	67.45	1.5, 2.315A.	-79°
12	" hept- .....	Cl <sub>2</sub> O <sub>7</sub> .....	182.9	.....	.....
13	Chlorosulphonic Acid .....	ClSO <sub>2</sub> .OH .....	116.52	1.784 <sup>‡</sup>	82°
14	Chromium .....	Cr .....	52.1	6.92 <sup>20°</sup>	1515°
15	dioxide .....	CrO <sub>2</sub> .....	84.10	.....	190, O, 300
16	phosphide .....	CrP .....	83.10	5.71 <sup>15°</sup>	.....
17	tetrasulphide .....	Cr <sub>2</sub> S <sub>4</sub> .....	234.54	.....	.....
18	trioxide .....	CrO <sub>3</sub> .....	100.10	2.67-2.82	170°
19	Chromic bromide .....	CrBr <sub>3</sub> .....	291.98	.....	.....
20	" .....	CrBr <sub>3</sub> .6H <sub>2</sub> O .....	400.08	.....	.....
21	carbide .....	Cr <sub>2</sub> C <sub>2</sub> .....	180.3	5.62	.....
22	chloride .....	CrCl <sub>3</sub> .....	158.45	2.757 <sup>15°</sup>	.....
23	" .....	CrCl <sub>3</sub> .6H <sub>2</sub> O .....	266.55	.....	sublimes 250°
24	fluoride .....	CrF <sub>3</sub> .....	109.1	3.78	decomp.
25	" .....	CrF <sub>3</sub> .9H <sub>2</sub> O .....	271.24	.....	.....
26	hydroxide .....	Cr(OH) <sub>3</sub> .....	103.12	.....	.....
27	nitrate .....	Cr(NO <sub>3</sub> ) <sub>3</sub> .9H <sub>2</sub> O .....	400.36	.....	37°
28	nitride .....	CrN .....	66.14	.....	dec. 1500°
29	oxide .....	Cr <sub>2</sub> O <sub>3</sub> .....	152.20	5.04	dec. 400°
30	phosphate .....	Cr <sub>2</sub> (PO <sub>4</sub> ) <sub>2</sub> .6H <sub>2</sub> O .....	402.30	.....	.....
31	" .....	Cr <sub>2</sub> (PO <sub>4</sub> ) <sub>2</sub> .12H <sub>2</sub> O .....	510.39	2.121	7H <sub>2</sub> O, 100°
32	silicide .....	Cr <sub>2</sub> Si <sub>2</sub> .....	213.10	5.6	.....
33	sulphate .....	Cr <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	392.38	3.012	.....
34	" .....	Cr <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .5H <sub>2</sub> O .....	482.46	.....	.....
35	" .....	Cr <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .15H <sub>2</sub> O .....	662.62	1.867 <sup>17°</sup>	18H <sub>2</sub> O, 100
36	sulphide .....	Cr <sub>2</sub> S <sub>3</sub> .....	200.38	3.77 <sup>19°</sup>	.....
37	Chromous acetate .....	Cr <sub>2</sub> (C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>6</sub> .2H <sub>2</sub> O .....	494.38	.....	.....
38	carbonate .....	CrCO <sub>3</sub> .....	112.10	.....	.....

\* Decomposes at 40°.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (aq.), Alkalies (alk.), etc.	
1	.....	insoluble	.....	soluble conc. $\text{H}_2\text{SO}_4$ .....	gray powder...
2	.....	insoluble	.....	soluble dilute acids.....	purple.....
3	.....	insoluble	insoluble	soluble acids.....	monocl. prisms.
4	.....	16.56°	2.25 <sup>100°</sup>	.....	[or rhombic
5	.....	23.8°	65°	.....	monocl., triclinic
6	.....	insoluble	decomp.	soluble dilute acids.....	black crystals..
7*	.....	v. soluble	.....	.....	.....
8	-33.6°	150° 300 <sup>100°</sup>	180 <sup>30°</sup> c.c.	soluble alkalies.....	greenish yellow.
9†	.....	soluble	.....	.....	octahedra.....
10	-5°	20000 c.c. <sup>9°</sup>	.....	.....	reddish yellow.
11	9.9°	2000 c.c. <sup>4°</sup>	decomp.	sol. conc. $\text{H}_2\text{SO}_4$ , alk.	yellowish green.
12	82°	soluble	.....	sol. benzene.....	oil.....
13	155.3°	decomp.	.....	insol. $\text{CS}_2$ ; decomp. al.	.....
14	.....	insoluble	insoluble	sol. $\text{HCl}$ , dil. $\text{H}_2\text{SO}_4$ ; insol. $\text{HNO}_3$	gray crystal-line
15	.....	insoluble	.....	.....	dark gray.....
16	.....	insoluble	.....	insol. a.; sol. $\text{HNO}_3$ , $\text{HF}$	gray black crys.
17	.....	insoluble	.....	s. soluble conc. acids.....	gray blk. powder
18	decomp.	v. soluble	v. soluble	sol. al., ether, $\text{H}_2\text{SO}_4$ ...	red triclinic....
19	.....	insoluble	.....	.....	olive green hex.
20	.....	200	.....	v. soluble alcohol.....	green hexag. pl.
21	.....	insoluble	insoluble	sol. dil. $\text{HCl}$ .....	gray crystals ..
22	1200-1500°	insoluble	s. soluble	insol. a.; sol. trace $\text{CrCl}_2$	pink crystals...
23	.....	v. soluble	.....	soluble alcohol.....	{ violet plates . { gr. hexag. pl..
24	.....	insoluble	.....	insol. al.; s. sol. acids ..	greenish octah..
25	.....	v. soluble	.....	insoluble al.; sol. a.....	[-blue gelatin.
26	.....	insoluble	.....	sol. a., alk.; s. sol. $\text{NH}_3$ aq	gray-green or
27	125.5°	soluble	.....	.....	purple prisms..
28	.....	insoluble	.....	insol. acids, alkalies ..	amorphous ..
29	.....	insoluble	.....	s. soluble acids.....	dark green hex.
30	.....	s. soluble	.....	{ sol. acids, alk.; ..	green.....
31	.....	s. soluble	.....	{ insol. $\text{H}_2\text{C}_2\text{H}_3\text{O}_2$ .....	violet triclinic..
32	.....	insoluble	insoluble	sol. $\text{HCl}$ , $\text{HF}$ ; insol. $\text{HNO}_3$ , $\text{H}_2\text{SO}_4$	tetragonal prisms.....
33	.....	insoluble	.....	insoluble acids.....	.....
34	.....	.....	.....	v. soluble alcohol.....	green amorph...
35	.....	120 <sup>20°</sup>	decomp. 67°	insoluble alcohol.....	violet octahed..
36	.....	insoluble	decomp.	soluble $\text{HNO}_3$ .....	brn. black pow.
37	.....	soluble	.....	insoluble alcohol.....	green.....
38	.....	insoluble	.....	insoluble ether.....	amorphous.....

† Decomposes at 35°.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Chromous chloride..	CrCl <sub>2</sub> .....	123.00	2.751 <sup>14°</sup>	.....
2	fluoride.....	CrF <sub>2</sub> .....	90.1	4.11	1100°
3	hydroxide.....	Cr(OH) <sub>3</sub> .....	86.12	.....	.....
4	iodide.....	CrI <sub>2</sub> .....	306.04	.....	.....
5	sulphate.....	CrSO <sub>4</sub> .7H <sub>2</sub> O.....	274.27	.....	.....
6	sulphide.....	CrS.....	84.16	4.08	.....
7	Chromyl trichloride	CrO <sub>2</sub> Cl <sub>2</sub> .....	155.00	1.9617 <sup>‡</sup>	.....
8	Cobalt.....	Co.....	59.0	8.718 <sup>‡</sup>	1530°
9	phosphide.....	Co <sub>2</sub> P.....	149.0	6.415°	.....
10	Cobaltic boride.....	CoB.....	70.0	7.2518°	.....
11	chloride.....	CoCl <sub>2</sub> .....	165.35	2.94	sublimes
12	“ dichro-.....	Co(NH <sub>3</sub> ) <sub>3</sub> Cl <sub>3</sub> .H <sub>2</sub> O.....	234.56	.....	.....
13	“ praseo-.....	Co(NH <sub>3</sub> ) <sub>4</sub> Cl <sub>3</sub> .H <sub>2</sub> O.....	251.62	.....	.....
14	“ purpureo-.....	Co(NH <sub>3</sub> ) <sub>5</sub> Cl <sub>3</sub> .....	250.67	1.80215°	.....
15	“ luteo-.....	Co(NH <sub>3</sub> ) <sub>6</sub> Cl <sub>3</sub> .....	267.73	1.7016 <sup>20°</sup>	.....
16	“ roseo-.....	Co(NH <sub>3</sub> ) <sub>5</sub> Cl <sub>3</sub> .H <sub>2</sub> O.....	268.69	.....	.....
17	chromate.....	2CoO.CrO <sub>3</sub> .2H <sub>2</sub> O.....	286.13	.....	.....
18	hydroxide.....	Co(OH) <sub>3</sub> .....	110.02	.....	.....
19	oxide.....	Co <sub>2</sub> O <sub>3</sub> .....	166.00	4.81-5.60	dec. red
20	potassium nitrite..	2Co(NO <sub>2</sub> ) <sub>3</sub> .6KNO <sub>2</sub> . 3H <sub>2</sub> O.....	959.43	.....	.....
21	sulphate.....	Co <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	406.18	.....	.....
22	sulphide.....	Co <sub>2</sub> S <sub>3</sub> .....	214.18	4.8	.....
23	“ di-.....	CoS <sub>2</sub> .....	123.12	4.269	.....
24	Cobaltocobaltic oxide	Co <sub>3</sub> O <sub>4</sub> .....	241.00	5.8-6.3	.....
25	Cobaltous acetate...	Co(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> .4H <sub>2</sub> O.....	249.11	1.7043 <sup>18.7°</sup>	.....
26	am. chloride.....	CoCl <sub>2</sub> .NH <sub>4</sub> Cl.6H <sub>2</sub> O.....	291.52	.....	.....
27	“ sulphate.....	CoSO <sub>4</sub> .(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> . 6H <sub>2</sub> O.....	395.36	1.90218°	.....
28	arsenate.....	Co <sub>3</sub> (AsO <sub>4</sub> ) <sub>2</sub> .8H <sub>2</sub> O.....	599.13	2.948	.....
29	arsenite.....	Co <sub>3</sub> H <sub>6</sub> (AsO <sub>3</sub> ) <sub>4</sub> .H <sub>2</sub> O.....	693.06	.....	.....
30	bromate.....	Co(BrO <sub>3</sub> ) <sub>2</sub> .6H <sub>2</sub> O.....	455.02	.....	.....
31	bromide.....	CoBr <sub>2</sub> .....	218.92	4.909 <sup>‡</sup>	.....
32	“.....	CoBr <sub>2</sub> .6H <sub>2</sub> O.....	327.02	.....	100°
33	carbonate.....	CoCO <sub>3</sub> .....	119.00	.....	decomp.
34	“ basic.....	2CoCO <sub>3</sub> .3Co(OH) <sub>2</sub> .....	517.05	.....	.....
35	chlorate.....	Co(ClO <sub>3</sub> ) <sub>2</sub> .6H <sub>2</sub> O.....	334.00	.....	50°
36	chloride.....	CoCl <sub>2</sub> .....	129.90	2.937	sublimes
37	“.....	CoCl <sub>2</sub> .6H <sub>2</sub> O.....	238.00	1.84	86.75°
38	chromate.....	CoCrO <sub>4</sub> .....	175.10	.....	decomp.
39	cyanide.....	Co(CN) <sub>2</sub> .2H <sub>2</sub> O.....	147.11	.....	2H <sub>2</sub> O, 280°

\* Decomposes at 100°.



Number.	Boiling Point, °C.	Solubility in 100 parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1		v. soluble			crystalline
2		s. soluble		insol. al.; sol. hot HCl.	green crystals
3		decomp.		soluble acids	yellow brown
4		v. soluble			
5		12.35°		s. soluble alcohol	blue
6		insoluble		v. soluble acids	black powder
7	115.9°	decomp.			dark red
8		insoluble	insoluble	soluble acids	
9		insoluble	insoluble	sol. conc. HNO <sub>3</sub>	small needles
10		decomp.	decomp.	soluble HNO <sub>3</sub>	prisms
11		soluble	soluble		
12		soluble		soluble acids, alcohol	
13		v. soluble		soluble acids; insol. al.	green crystals
14		0.232°	1.03146.6°	insoluble alcohol	
15		4.26°	12.7446.6°	insoluble al., NH <sub>3</sub> aq.	
16		16.12°	24.8716.19°	s. soluble HCl	brick red
17		decomp.			
18		insoluble	insoluble	insol. al.; sol. conc. cold a.	black
19	heat	insoluble	insoluble	soluble conc. acids	steel gray
20		s. soluble		insol. alcohol, ether	yellow prisms
21		sol. with dec.		soluble conc., H <sub>2</sub> SO <sub>4</sub>	[der blue cryst. pow-
22		insoluble		decomp. by acids	black crystals
23		insoluble		sol. HNO <sub>3</sub> , aqua regia	black
24		insoluble	insoluble	sol. conc. H <sub>2</sub> SO <sub>4</sub>	black
25		soluble			red needles
26		deliques.	v. soluble		ruby red
27		20.52°	45.48°	insoluble alcohol	
28		insoluble	insoluble	soluble acids, NH <sub>3</sub> aq.	reddish monocl.
29		insoluble		soluble acids	rose red
30		45.51°		soluble NH <sub>3</sub> aq.	hyacinth. octa.
31		soluble		soluble alcohol, ether	
32		deliques.	soluble	soluble alcohol, ether	green
33		insoluble	insoluble	insol. conc. HCl, HNO <sub>3</sub>	red rhombohed.
34		insoluble	decomp.	sol. (NH <sub>4</sub> ) <sub>2</sub> CO <sub>3</sub>	red colored
35	*	deliques.	soluble	soluble alcohol	regular
36		457°	10596°	31 al., 8.62 acetone	blue crystals
37	†	v. soluble	v. soluble	v. sol. ether, glycoll.	red monoclinic
38		insoluble		sol. a., NH <sub>3</sub> aq.	yellowish-brown
39		insoluble		sol. KCN, HCl, NH <sub>3</sub> aq.	buff colored

† Loses 6H<sub>2</sub>O at 110°.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Cobaltous ferricyanide.	Co <sub>3</sub> [Fe(CN) <sub>6</sub> ] <sub>2</sub> . . . . .	601.28		
2	ferrocyanide . . . . .	Co <sub>3</sub> Fe(CN) <sub>6</sub> .7H <sub>2</sub> O . . . . .	456.25		
3	fluoride . . . . .	CoF <sub>2</sub> .2H <sub>2</sub> O . . . . .	133.03	4.43 *	
4	" . . . . .	CoF <sub>2</sub> .5HF.6H <sub>2</sub> O . . . . .	305.13	2.086	
5	hydroxide . . . . .	Co(OH) <sub>2</sub> . . . . .	93.02	3.597 <sup>15°</sup>	
6	iodate . . . . .	Co(IO <sub>3</sub> ) <sub>2</sub> . . . . .	408.94	5.008 <sup>18°</sup>	
7	iodide . . . . .	CoI <sub>2</sub> . . . . .	312.94		
8	" . . . . .	CoI <sub>2</sub> .2H <sub>2</sub> O . . . . .	348.97		
9	" . . . . .	CoI <sub>2</sub> .6H <sub>2</sub> O . . . . .	421.04		
10	nitrate . . . . .	Co(NO <sub>3</sub> ) <sub>2</sub> .6H <sub>2</sub> O . . . . .	291.18	1.83 <sup>14°</sup>	56°
11	oxalate . . . . .	CoC <sub>2</sub> O <sub>4</sub> .2H <sub>2</sub> O . . . . .	183.03	2.325 <sup>19°</sup> *	
12	oxide . . . . .	CoO . . . . .	75.00	5.6-5.75	
13	phosphate . . . . .	Co <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> . . . . .	367.00		
14	" . . . . .	Co <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> .3H <sub>2</sub> O . . . . .	421.05		
15	phosphite . . . . .	CoHPO <sub>3</sub> .2H <sub>2</sub> O . . . . .	175.04		blue at 250
16	potass. carbonate . . . . .	CoCO <sub>3</sub> .KHCO <sub>3</sub> .4H <sub>2</sub> O . . . . .	291.22		
17	selenide . . . . .	CoSe . . . . .	138.20	7.65	red heat
18	silicate . . . . .	Co <sub>2</sub> SiO <sub>4</sub> . . . . .	210.4	4.63	
19	sulphate . . . . .	CoSO <sub>4</sub> . . . . .	155.06	3.472 <sup>15°</sup>	989°
20	" . . . . .	CoSO <sub>4</sub> .7H <sub>2</sub> O . . . . .	281.17	1.918 <sup>15°</sup>	96.8°
21	sulphide . . . . .	CoS . . . . .	91.06	5.45	
22	sulphite . . . . .	CoSO <sub>3</sub> .5H <sub>2</sub> O . . . . .	229.14		
23	Columbic Acid . . . . .	3Cb <sub>2</sub> O <sub>5</sub> .7H <sub>2</sub> O . . . . .	930.11		
24	Columbium (Niobium)	Cb . . . . .	94.0	7.06†	1950° § . . .
25	bromide . . . . .	CbBr <sub>5</sub> . . . . .	493.80		
26	chloride penta- . . . . .	CbCl <sub>5</sub> . . . . .	271.25		194°
27	hydride . . . . .	CbH . . . . .	95.01	6-6.6	decomp.
28	nitride . . . . .	CbN . . . . .	108.04		
29	oxalate . . . . .	Cb(HC <sub>2</sub> O <sub>4</sub> ) <sub>3</sub> . . . . .	539.04		
30	oxide mon- . . . . .	CbO . . . . .	220.00	6.3-6.67	
31	" di- . . . . .	CbO <sub>2</sub> . . . . .	126.00		
32	" pent- . . . . .	Cb <sub>2</sub> O <sub>5</sub> . . . . .	268.00	4.4-4.53	
33	oxybromide . . . . .	CbOBr <sub>3</sub> . . . . .	349.88		sublimes
34	oxychloride . . . . .	CbOCl <sub>3</sub> . . . . .	216.35		subl. 400°
35	oxysulphide . . . . .	Cb <sub>2</sub> OS <sub>3</sub> . . . . .	300.18		
36	Copper . . . . .	Cu . . . . .	63.6	8.91-8.96	1084° ¶
37	boride . . . . .	Cu <sub>3</sub> B <sub>2</sub> . . . . .	212.8	8.116	
38	hydride . . . . .	Cu <sub>2</sub> H <sub>2</sub> . . . . .	129.22		dec. 60°
39	nitride . . . . .	Cu <sub>3</sub> N . . . . .	204.84		dec. 300°

\* Density of the anhydrous salt.

† Decomposes at red heat.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1		insoluble	.....	insol. HCl; sol. $\text{NH}_3$ aq.	red
2		insoluble	.....	insol. HCl; sol. KCN	gray-green
3		soluble	decomp.	soluble HF	rose red cryst.
4					trimetric prisms
5		insoluble	insoluble	insol. alk.; sol. $\text{NH}_3$ salts	rose red
6	0.415°		1.33100°	soluble HCl, $\text{HNO}_3$	
7	159°		420100°	v. soluble alcohol	
8		deliques			green
9					red
10	†	v. soluble		10012.5° alcohol	red monoclinic
11		insoluble		sol. a., $\text{NH}_3$ aq.	reddish-white
12		insoluble	insoluble	sol. a., $\text{NH}_3$ aq.; insol. al.	greenish brown
13		insoluble	insoluble	sol. $\text{H}_3\text{PO}_4$ , $\text{NH}_3$ aq.	reddish
14		insoluble		soluble $\text{H}_3\text{PO}_4$	
15					reddish. [cryst.
16		decomp.			rose colored
17					yellow crystals
18		insoluble		decomp. by HCl	violet
19	26.23°		82.6100°	1.0418° methyl alcohol	red powder
20	44.6°		150100°	2.53° alcohol	†
21		insoluble		sol. conc. HCl, aq. r., al.	brown needles
22		insoluble		soluble $\text{H}_2\text{SO}_3$ , $[\text{H}_2\text{SO}_4]$	red
23		insoluble		sol. KOH, HF, conc.	
24		insoluble	insoluble	{ s.sol. HCl, $\text{HNO}_3$ , aq. r. sol. hot conc. $\text{H}_2\text{SO}_4$	steel gray
25					purple red
26	240.5°	decomp.		sol. $\text{CCl}_4$ , al. conc. HCl	yellow needles
27				sol. HF; insol. acids	gray powder
28				insol. $\text{HNO}_3$ ; sol. HF + $\text{HNO}_3$	black
29		decomp.	decomp.	dec. al.; sol. $\text{H}_2\text{C}_2\text{O}_4$	monoclinic
30				$[\text{H}_2\text{SO}_4]$	regular
31		insoluble		insol. $\text{HNO}_3$ ; sol. conc.	black
32		insoluble		sol. conc. $\text{H}_2\text{SO}_4$ , HF	crystalline
33		decomp.		soluble conc. acids	yellow crystals
34		decomp.		sol. $\text{H}_2\text{SO}_4$ , alcohol	needles
35		insoluble		sol. conc. $\text{H}_2\text{SO}_4$ , $[\text{H}_2\text{SO}_4]$	black
36	2100°	insoluble	insoluble	sol. $\text{HNO}_3$ , hot conc.	red crystalline
37					yellow
38				soluble HCl	reddish brown
39				decomp. by acids	

† Carmine red rhomb. or monocl. Burns in the air. † Melts at 1065° in the air.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point. °C.
1	Copper peroxide.....	CuO <sub>2</sub> .H <sub>2</sub> O.....	113.62	.....	.....
2	suboxide.....	Cu <sub>2</sub> O.....	270.40	.....	oxidizes
3	Cupric acetate.....	Cu(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> .H <sub>2</sub> O..	199.66	1.9	dec. 240°
4	aceto-arsenite.....	(CuOAs <sub>2</sub> O <sub>3</sub> ) <sub>3</sub> .Cu (C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub>	966.45	.....	.....
5	ammonium chloride.	CuCl <sub>2</sub> .2NH <sub>4</sub> Cl.2H <sub>2</sub> O	277.58	1.96-1.97	2H <sub>2</sub> O, 120°
6	" sulphate....	CuSO <sub>4</sub> .4NH <sub>3</sub> .H <sub>2</sub> O..	245.93	.....	decomp.
7	arsenate.....	Cu <sub>3</sub> (AsO <sub>4</sub> ) <sub>2</sub> .4H <sub>2</sub> O..	540.86	.....	.....
8	arsenate, acid.....	Cu <sub>3</sub> H <sub>2</sub> (AsO <sub>4</sub> ) <sub>4</sub> .2H <sub>2</sub> O	912.05	.....	.....
9	arsenide.....	Cu <sub>3</sub> As <sub>2</sub> .....	468.00	7.56	decomp.
10	arsenite (Paris green)	CuHAsO <sub>3</sub> .....	187.61	.....	decomp.
11	bromate.....	Cu(BrO <sub>3</sub> ) <sub>2</sub> .5H <sub>2</sub> O..	409.60	2.583	5H <sub>2</sub> O, 200°
12	bromide.....	CuBr <sub>2</sub> .....	223.52	.....	decomp.
13	Cupric carbonate basic.	CuCO <sub>3</sub> .Cu(OH) <sub>2</sub> ...	221.22	3.7-4.0	decomp.
14	" " "...	2CuCO <sub>3</sub> .Cu(OH) <sub>2</sub> ..	344.82	3.88	decomp.
15	chlorate.....	Cu(ClO <sub>3</sub> ) <sub>2</sub> .6H <sub>2</sub> O....	338.60	.....	65°
16	chloride.....	CuCl <sub>2</sub> .....	134.50	3.054	498°
17	".....	CuCl <sub>2</sub> .2H <sub>2</sub> O.....	170.53	2.47-2.535	2H <sub>2</sub> O, 100°
18	chromate, basic.....	CuCrO <sub>4</sub> .2CuO.2H <sub>2</sub> O	374.93	.....	2H <sub>2</sub> O, 260°
19	cyanide.....	Cu(CN) <sub>2</sub> .....	115.68	.....	easily dec.
20	dichromate.....	CuCr <sub>2</sub> O <sub>7</sub> .2H <sub>2</sub> O....	315.83	.....	.....
21	fluoride.....	CuF <sub>2</sub> .2H <sub>2</sub> O.....	137.63	.....	.....
22	fluosilicate.....	CuSiF <sub>6</sub> .6H <sub>2</sub> O.....	314.10	2.182	.....
23	ferricyanide.....	Cu <sub>3</sub> Fe(CN) <sub>6</sub> .....	678.68	.....	.....
24	ferrocyanide.....	Cu <sub>2</sub> Fe(CN) <sub>6</sub> .7H <sub>2</sub> O..	465.45	.....	.....
25	formate.....	Cu(CHO <sub>2</sub> ) <sub>2</sub> .....	153.62	1.831	.....
26	hydroxide.....	Cu(OH) <sub>2</sub> .....	97.62	3.368	decomp.
27	iodate.....	Cu(IO <sub>3</sub> ) <sub>2</sub> .....	413.54	5.241 <sup>15°</sup>	decomp.
28	".....	Cu(IO <sub>3</sub> ) <sub>2</sub> .H <sub>2</sub> O.....	431.56	4.876 <sup>15°</sup>	dec. 290°
29	".....	Cu(IO <sub>3</sub> ) <sub>2</sub> .2H <sub>2</sub> O....	449.57	.....	decomp.
30	" basic.....	CuOHIO <sub>3</sub> .....	255.58	4.878 <sup>15°</sup>	dec. 290°
31	lactate.....	Cu(C <sub>3</sub> H <sub>5</sub> O <sub>3</sub> ) <sub>2</sub> .2H <sub>2</sub> O..	277.71	.....	.....
32	nitro prusside.....	CuFe(CN) <sub>5</sub> NO.2H <sub>2</sub> O	331.77	.....	.....
33	nitrate.....	Cu(NO <sub>3</sub> ) <sub>2</sub> .3H <sub>2</sub> O....	241.73	2.174	114.5°
34	".....	Cu(NO <sub>3</sub> ) <sub>2</sub> .6H <sub>2</sub> O....	295.78	2.074	26.4°
35	oxalate.....	CuC <sub>2</sub> O <sub>4</sub> .½H <sub>2</sub> O.....	160.61	.....	.....
36	oxide.....	CuO.....	79.60	6.32-6.43	.....
37	oxychloride.....	CuCl <sub>2</sub> .2CuO.4H <sub>2</sub> O..	429.36	.....	3H <sub>2</sub> O, 140°
38	periodate.....	Cu <sub>3</sub> HIO <sub>6</sub> .....	351.18	.....	dec. 110°

\* Decomposes at 100°.

† Decomposes at red heat.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk., etc.	
1	.....	insoluble	.....	soluble acids. ....	olive green. ....
2	.....	insoluble	.....	decomp. by acids. ....	olive green. ....
3	.....	7.2	20	7.143 alcohol; sol. ether	dark green
4	.....	insoluble	.....	sol. acids $\text{NH}_3$ aq. ....	green [bic monocl.
5	.....	v. soluble	.....	soluble alcohol. ....	light blue rhom-
6	.....	18.5 <sup>21.5°</sup>	decomp.	insoluble alcohol. ....	.....
7	.....	insoluble	.....	soluble acids, $\text{NH}_3$ aq. ....	bluish green ...
8	.....	insoluble	.....	soluble acids, $\text{NH}_3$ aq. ....	blue. ....
9	.....	insoluble	insoluble	soluble $\text{HNO}_3$ , aq. r. ....	bluish octahed.
10	.....	insoluble	.....	soluble acids, $\text{NH}_3$ aq. ....	light green. ....
11	.....	v. soluble	.....	.....	blue green crys.
12	.....	v. soluble	.....	insoluble benzene. ....	iodine col. crys.
13	.....	insoluble	decomp.	0.026, $\text{CO}_2$ aq.; sol. KCN	dark gr. mo'cl.
14	.....	insoluble	decomp.	sol. $\text{NH}_3$ aq., hot $\text{NaHCO}_3$ aq.	blue monoclinic
15 *	.....	deliques.	v. soluble	soluble alcohol. .... [al.	green octahedra
16 decomp.	75.5 <sup>17°</sup>	.....	81 <sup>31.5°</sup>	53 <sup>15.5°</sup> al., 68 <sup>15.5°</sup> methyl	brownish yellow
17 †	121.4 <sup>16.1°</sup>	.....	v. soluble	sol. $\text{NH}_4\text{Cl}$ , ether, al. ....	blue rhombic ..
18	.....	insoluble	.....	soluble $\text{HNO}_3$ , $\text{NH}_3$ aq. ....	yellowish-brown
19	.....	insoluble	.....	sol. KCN. ....	yellowish-green.
20	.....	deliques.	decomp.	sol. alcohol, $\text{NH}_3$ aq. ....	black crystals..
21	.....	s. soluble	decomp.	sol. al., $\text{HCl}$ , $\text{HNO}_3$ , HF	pale blue mono.
22	.....	2.32 <sup>17°</sup>	.....	0.16 <sup>20°</sup> alcohol. ....	blue. ....
23	.....	insoluble	.....	insol. $\text{HCl}$ ; sol. $\text{NH}_3$ aq.	yellowish-green.
24	.....	insoluble	.....	insol. acids; sol. $\text{NH}_3$ aq.	brown red. ....
25	.....	12.5–25	decomp.	0.25 alcohol. .... [KCN	blue monoclinic
26	.....	insoluble	decomp.	sol. al., $\text{NH}_4\text{Cl}$ , $\text{Na}_2\text{S}_2\text{O}_3$ ,	blue crystals...
27	.....	insoluble	insoluble	sol. dil. $\text{H}_2\text{SO}_4$ ; insol. dil.	green mono-
28	.....	insoluble	insoluble	$\text{HNO}_3$ [HNO <sub>3</sub>	clinic plates
29	.....	0.33 <sup>15°</sup>	0.65 <sup>100°</sup>	sol. dil. $\text{H}_2\text{SO}_4$ ; insol. dil.	blue triclinic ..
30	.....	insoluble	insoluble	sol. $\text{HCl}$ , $\text{NH}_3$ aq. ....	greenish blue ..
31	.....	16.7	45 <sup>100°</sup>	sol. dil. $\text{H}_2\text{SO}_4$ , ....	gr. orthorhomb.
32	.....	insoluble	.....	0.9 cold, 4 hot alcohol.	dark blue mono.
33 †	.....	v. soluble	.....	decomp. by alkalies. ....	greenish. ....
34 §	.....	v. soluble	v. soluble	100 <sup>12.5°</sup> alcohol. ....	blue prismatic .
35	.....	insoluble	.....	soluble alcohol	crystalline. ....
36	.....	insoluble	.....	insol. $\text{H}_2\text{C}_2\text{H}_3\text{O}_2$ , ....	bluish-white ...
37	.....	hygroscopic	.....	sol. acids, $\text{NH}_4\text{Cl}$ , KCN.	black monocl..
38	100–120°	insoluble	insoluble	soluble acids. ....	blue green. ....
				sol. dil. $\text{HNO}_3$ , ....	green powder ..

† Decomposes at 170°.

§ Decomposes at 65°.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Cupric phosphate...	Cu <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> ·3H <sub>2</sub> O	434.85		
2	phosphide.....	Cu <sub>3</sub> P <sub>2</sub>	252.80	6.67	
3	phosphite.....	CuHPO <sub>3</sub> ·2H <sub>2</sub> O	179.64		decomp.
4	salicylate.....	Cu(C <sub>7</sub> H <sub>5</sub> O <sub>3</sub> ) <sub>2</sub> ·4H <sub>2</sub> O	320.70		
5	sulphate.....	CuSO <sub>4</sub>	159.66	3.516 <sup>30°</sup>	
6	".....	CuSO <sub>4</sub> ·5H <sub>2</sub> O	249.74	2.284 <sup>15°</sup>	4H <sub>2</sub> O, 110°
7	sulphide.....	CuS	95.66	3.8-4.16	
8	tartrate.....	CuC <sub>4</sub> H <sub>4</sub> O <sub>6</sub> ·3H <sub>2</sub> O	265.68		decomp.
9	Cuprous ammonium iodide	CuI·NH <sub>4</sub> I·H <sub>2</sub> O	353.63		
10	bromide.....	Cu <sub>2</sub> Br <sub>2</sub>	287.12	4.72	504°
11	carbonate.....	Cu <sub>2</sub> CO <sub>3</sub>	123.6		decomp.
12	chloride.....	Cu <sub>2</sub> Cl <sub>2</sub>	198.10	3.38-3.68	434°
13	cyanide.....	Cu <sub>2</sub> (CN) <sub>2</sub>	179.28		
14	fluoride.....	Cu <sub>2</sub> F <sub>2</sub>	165.20		908°
15	ferricyanide.....	Cu <sub>3</sub> Fe(CN) <sub>6</sub>	402.94		
16	ferrocyanide.....	Cu <sub>4</sub> Fe(CN) <sub>6</sub>	466.54		
17	hydroxide.....	CuOH	80.61		½H <sub>2</sub> O, 360°
18	iodide.....	Cu <sub>2</sub> I <sub>2</sub>	381.14	5.29-5.65 <sup>15°</sup>	628°
19	oxide.....	Cu <sub>2</sub> O	143.20	5.75-6.09	red heat
20	phosphide.....	Cu <sub>3</sub> P <sub>2</sub>	443.60	6.35-6.75	
21	sulphide.....	Cu <sub>2</sub> S	159.26	5.52-5.82	1100°
22	sulphite.....	Cu <sub>2</sub> SO <sub>3</sub> ·H <sub>2</sub> O	225.28	3.83-4.46	
23	sulphocyanate.....	CuCNS	121.70		
24	Cyanic acid.....	CNOH	43.05	1.140 <sup>8</sup>	
25	Cyanogen.....	C <sub>2</sub> N <sub>2</sub>	52.08	1.8064A.	-39°
26	bromide.....	CNBr	106.00	3.607D	52°
27	chloride.....	CNCl	61.49	2.13D	-18°
28	".....	(CN) <sub>3</sub> Cl <sub>3</sub>	184.47	1.32	145°
29	iodide.....	CNI	153.01	1.85	146.5°
30	sulphide.....	(CN) <sub>2</sub> S	84.14		60°
31	Erbium.....	Er	166.	4.77	
32	chloride.....	ErCl <sub>3</sub> ·6H <sub>2</sub> O	380.45		
33	nitrate.....	Er(NO <sub>3</sub> ) <sub>3</sub> ·6H <sub>2</sub> O	460.22		
34	oxide.....	Er <sub>2</sub> O <sub>3</sub>	380.00	8.640	infusible
35	sulphate.....	Er <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub>	620.18	3.678	dec. 950°
36	".....	Er <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> ·8H <sub>2</sub> O	764.31	3.180	
37	Ferric acetate, basic	FeOH(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub>	190.96		
38	arsenate.....	FeAsO <sub>4</sub> ·2H <sub>2</sub> O	230.93	3.18	
39	arsenite basic.....	2FeAsO <sub>3</sub> ·Fe <sub>2</sub> O <sub>3</sub> ·5H <sub>2</sub> O	607.68		decomp.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1		insoluble	.....	soluble acids, $\text{NH}_3\text{aq.}$	blue green.....
2		insoluble	.....	insol. $\text{HCl}$ ; sol. $\text{HNO}_3$	black.....
3		insoluble	insoluble	.....	.....[needles
4		v. soluble	.....	v. soluble alcohol	bluish green
5		200°	194 <sup>100°</sup>	insoluble	.....
6	5H <sub>2</sub> O, 230°	31.61°	203.3 <sup>100°</sup>	insoluble alcohol... [K <sub>2</sub> S	blue triclinic...
7		0.0001	.....	sol. $\text{HNO}_3$ , $\text{KCN}$ ; insol.	black.....
8		0.06	0.3	.....	light green.....
9		decomp.	decomp.	soluble $\text{NH}_4\text{I}$ .....	rhombic plates
				[ $\text{NH}_4\text{Cl}$	or prisms...
10	861-954°	insoluble	.....	sol. $\text{HBr}$ , $\text{HCl}$ , $\text{NH}_3\text{aq.}$	.....
11		insoluble	.....	sol. acids, $\text{NH}_3\text{aq.}$	yellow.....
12	954-1032°	insoluble	.....	sol. $\text{HCl}$ , $\text{NH}_3\text{aq.}$ , $\text{NH}_4\text{Cl}$	tetrahedral....
13	red heat	insoluble	.....	sol. $\text{HCl}$ , $\text{NH}_3\text{aq.}$ , $\text{KCN}$	monoclinic.....
14		insoluble	.....	sol. $\text{HNO}_3$ , conc. $\text{HCl}$ ;	red crystalline
				insol. al.....	.....
15		insoluble	.....	sol. $\text{NH}_3\text{aq.}$ ; insol. $\text{HCl}$	brownish red..
16		insoluble	.....	sol. $\text{NH}_3\text{aq.}$ , insol. $\text{NH}_4\text{Cl}$	brown red.....
17		insoluble	insoluble	sol. acids, $\text{NH}_3\text{aq.}$	yellow.....
18	759-772°	0.0008 <sup>18°</sup>	.....	insol. a., al.; sol. $\text{KI}$ .....	.....
19		insoluble	insoluble	sol. $\text{NH}_3\text{aq.}$ , $\text{NH}_4\text{Cl}$ , $\text{HCl}$	carmine (red)..
20		insoluble	.....	sol. $\text{HNO}_3$ ; insol. $\text{HCl}$	gray black.....
21		insoluble	.....	soluble $\text{HNO}_3$ , [al., ether	rhomb. or reg..
22		s. soluble	.....	sol. $\text{NH}_3\text{aq.}$ , $\text{HCl}$ ; insol.	red.....
23		insoluble	.....	sol. $\text{NH}_3\text{aq.}$	.....
24		decomp.	.....	.....	.....
25	-22°	25 c.c.	.....	4.4 c.c.al., sol. ether	.....
26	61.3°	v. soluble	.....	v. soluble alcohol	regular.....
27	15.5°	soluble	.....	v. soluble al., ether	prisms.....
28		.....	.....	.....	.....
29		soluble	.....	v. soluble al., ether	needles.....
30		v. soluble	.....	v. sol. al., ether	rhombic tablets.
31		.....	.....	.....	.....
32		deliques.	soluble	soluble alcohol	.....
33		soluble	.....	soluble alcohol	crystals.....
34		insoluble	.....	soluble hot acids	.....
35		43	.....	.....	.....
36		30 <sup>20°</sup>	100 <sup>100°</sup>	.....	.....
37		insoluble	.....	soluble alcohol, acids	amorphous.....
38		insoluble	insoluble	soluble $\text{HCl}$ .....	+ 4H <sub>2</sub> O, rhomb.
39		decomp.	.....	soluble alkalies.....	brown to yellow

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water=1. Air=1(A). H <sub>2</sub> =1(D).	Melting Point, °C.
1	Ferric bromide.....	FeBr <sub>3</sub> .....	295.78	.....	*
2	chloride.....	FeCl <sub>3</sub> .....	162.25	2.804 <sup>10.8°</sup>	301°
3	".....	FeCl <sub>3</sub> .6H <sub>2</sub> O.....	270.35	.....	37°
4	ferrocyanide (Prussian blue)	Fe <sub>4</sub> [Fe(CN) <sub>6</sub> ] <sub>3</sub> .....	860.02	.....	decomp.
5	fluoride.....	FeF <sub>3</sub> .....	112.90	3.18	.....
6	".....	FeF <sub>3</sub> .4½H <sub>2</sub> O.....	193.97	.....	3H <sub>2</sub> O, 100°
7	formate.....	Fe(CHO <sub>2</sub> ) <sub>3</sub> .H <sub>2</sub> O.....	208.94	.....	.....
8	hydroxide.....	Fe(OH) <sub>3</sub> .....	106.92	3.4-3.9	1½H <sub>2</sub> O, 500
9	lactate.....	Fe(C <sub>3</sub> H <sub>5</sub> O <sub>2</sub> ) <sub>3</sub> .....	275.02	.....	.....
10	nitrate.....	Fe(NO <sub>3</sub> ) <sub>3</sub> .9H <sub>2</sub> O.....	404.16	1.6835 <sup>20°</sup>	47.2°
11	oxalate.....	Fe <sub>2</sub> (C <sub>2</sub> O <sub>4</sub> ) <sub>3</sub> .....	375.80	.....	dec. 100°
12	oxide.....	Fe <sub>2</sub> O <sub>3</sub> .....	159.80	5.12-5.24	.....
13	phosphate.....	FePO <sub>4</sub> .4H <sub>2</sub> O.....	222.96	2.87	.....
14	pyrophosphate.....	Fe <sub>2</sub> (P <sub>2</sub> O <sub>7</sub> ) <sub>3</sub> .9H <sub>2</sub> O.....	907.74	.....	.....
15	sulphate.....	Fe <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	399.98	3.097 <sup>18°</sup>	.....
16	".....	Fe <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .9H <sub>2</sub> O.....	562.12	2-2.1	.....
17	sulphide.....	Fe <sub>2</sub> S <sub>3</sub> .....	207.98	4.25-4.41	decomp.
18	sulphocyanate.....	Fe(CNS) <sub>3</sub> .3H <sub>2</sub> O.....	284.25	.....	.....
19	Ferrous acetate.....	Fe(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> .4H <sub>2</sub> O.....	246.01	.....	decomp.
20	ammonium sulphate	FeSO <sub>4</sub> (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .6H <sub>2</sub> O.....	392.26	1.865	.....
21	arsenate.....	Fe <sub>3</sub> (AsO <sub>4</sub> ) <sub>2</sub> .6H <sub>2</sub> O.....	553.80	.....	.....
22	arsenite.....	Fe <sub>2</sub> As <sub>2</sub> O <sub>5</sub> .....	341.8	.....	.....
23	bromide.....	FeBr <sub>2</sub> .....	315.82	4.636 <sup>†</sup>	.....
24	".....	FeBr <sub>2</sub> .6H <sub>2</sub> O.....	323.92	.....	27°
25	carbonate.....	FeCO <sub>3</sub> .....	115.9	3.70-3.87	decomp.
26	".....	FeCO <sub>3</sub> .H <sub>2</sub> O.....	133.92	.....	decomp.
27	chloride.....	FeCl <sub>2</sub> .....	126.80	2.988 <sup>17.9°</sup>	.....
28	".....	FeCl <sub>2</sub> .4H <sub>2</sub> O.....	198.86	1.93	red heat
29	chloroplatinate....	FePtCl <sub>6</sub> .6H <sub>2</sub> O.....	571.50	2.714	.....
30	ferricyanide (Turnbull's blue)	Fe <sub>3</sub> [Fe(CN) <sub>6</sub> ] <sub>2</sub> .....	591.98	.....	decomp.
31	ferrocyanide.....	Fe <sub>2</sub> Fe(CN) <sub>6</sub> .....	323.94	.....	.....
32	fluoride.....	FeF <sub>2</sub> .8H <sub>2</sub> O.....	238.03	4.09 §	8H <sub>2</sub> O, 100°
33	formate.....	Fe(CHO <sub>2</sub> ) <sub>2</sub> .2H <sub>2</sub> O.....	181.95	.....	decomp.
34	hydroxide.....	Fe(OH) <sub>2</sub> .....	89.92	.....	.....
35	iodide.....	FeI <sub>2</sub> .4H <sub>2</sub> O.....	381.90	2.873	177° §
36	lactate.....	Fe(C <sub>3</sub> H <sub>5</sub> O <sub>2</sub> ) <sub>2</sub> .3H <sub>2</sub> O.....	288.03	.....	decomp.
37	nitrate.....	Fe(NO <sub>3</sub> ) <sub>2</sub> .6H <sub>2</sub> O.....	288.08	.....	60.5°
38	oxalate.....	FeC <sub>2</sub> O <sub>4</sub> .2H <sub>2</sub> O.....	179.93	.....	†

\* Sublimes and dec. † Red hexag., rhombohed. or reg. ‡ Grayish rhombohed



Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	soluble	soluble	soluble alcohol, ether	dark red crystals
2	.....	158.7	536.6	v. sol. al., ether + HCl	brown hexagon.
3	280–285°	211.6	625.8	soluble alcohol	.....
4	.....	insoluble	.....	{ insol. al., ether; sol. conc. HCl, H <sub>2</sub> SO <sub>4</sub>	dark blue cryst.
5	.....	s. soluble	soluble	insol. al., ether; sol. a.	crystals
6	decomp.	s. soluble	soluble	insoluble alcohol	yellow crystals.
7	.....	soluble	decomp.	.....	yellow crystals.
8	.....	insoluble	insoluble	insoluble alcohol, ether.	reddish brown
9	.....	deliques.	v. soluble	insoluble ether	brown amorph.
10	decomp.	v. soluble	v. soluble	soluble alcohol	rhombic
11	.....	v. soluble	.....	insoluble alcohol	amorphous
12	.....	hygroscopic.	insoluble	soluble acids	† [or monoc.
13	.....	insoluble	0.067	insol. H.C <sub>2</sub> H <sub>3</sub> O <sub>2</sub>	yellow rhombic
14	.....	insoluble	.....	soluble acids	yellow
15	.....	s. soluble	decomp.	insol. conc. H <sub>2</sub> SO <sub>4</sub>	amorphous
16	.....	v. soluble	decomp.	dec. by al.; sol. ab. al.	yellow rhombic
17	.....	decomposes	.....	decomposed by acids	greenish yellow.
18	.....	v. soluble	.....	v. soluble alcohol, ether	blackish red reg.
19	.....	v. soluble	.....	.....	needles
20	.....	18°	78.275°	insoluble alcohol	blue green monoclinic
21	.....	insoluble	.....	s. soluble NH <sub>3</sub> aq	.....
22	.....	insoluble	.....	soluble NH <sub>3</sub> aq	greenish white.
23	.....	soluble	.....	soluble alcohol	.....
24	.....	soluble	v. soluble	soluble alcohol	yellow rhombic.
25	.....	insoluble	insoluble	soluble CO <sub>2</sub> aq	†
26	.....	s. soluble	.....	soluble acids, CO <sub>2</sub> aq	amorphous
27	.....	5018.75°	.....	100 alcohol	.....
28	.....	147	v. soluble	soluble alcohol	blue gr. mono.
29	.....	v. soluble	v. soluble	.....	yellow hexag.
30	.....	insoluble	.....	insoluble al., dil. acids	deep blue
31	.....	insoluble	.....	.....	[or phous
32	.....	s. soluble	.....	insol. al., ether; sol. a.	white-blue am-green
33	.....	s. soluble	.....	.....	.....
34	.....	0.00067	.....	soluble NH <sub>4</sub> Cl, acids	pale green cryst.
35	.....	v. soluble	decomp.	soluble alcohol	green crystals
36	.....	2.110°	8.5100°	insoluble alcohol	green crystals
37	.....	200°	30025°	.....	crystals
38	.....	0.022	0.026	sol. acids	yellow crystals.

§ The anhydrous salt.

† Decomposes at 160° into 2H<sub>2</sub>O, CO, CO<sub>2</sub>, Fe.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water=1. Air=1 (A). H <sub>2</sub> =1 (D).	Melting Point, °C.
1	Ferrous oxide.....	FeO.....	71.90	.....	.....
2	perchlorate.....	Fe(ClO <sub>4</sub> ) <sub>2</sub> ·6H <sub>2</sub> O.....	362.90	.....	dec. < 100
3	phosphate.....	Fe <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> ·8H <sub>2</sub> O.....	501.83	2.680	.....
4	potassium oxalate	K <sub>2</sub> Fe(C <sub>2</sub> O <sub>4</sub> ) <sub>2</sub> ·2H <sub>2</sub> O.....	346.23	.....	decomp.
5	sulphate.....	FeSO <sub>4</sub> ·7H <sub>2</sub> O.....	278.07	1.86-1.90	64°*
6	sulphide.....	FeS.....	87.96	4.75-5.04	red heat
7	sulphite.....	FeSO <sub>3</sub> ·2½H <sub>2</sub> O.....	190.01	.....	dec. 250°
8	sulphocyanate.....	Fe(CNS) <sub>2</sub> ·3H <sub>2</sub> O.....	226.15	.....	decomp.
9	tartrate.....	FeC <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .....	203.93	.....	.....
10	thiosulphate. [ride	FeS <sub>2</sub> O <sub>3</sub> ·5H <sub>2</sub> O.....	258.10	.....	.....
11	Ferroso-ferric chlo-	FeCl <sub>2</sub> ·2FeCl <sub>3</sub> ·18H <sub>2</sub> O.....	613.34	.....	dec. 50°
12	ferricyanide (Prus- sian green)	Fe <sup>III</sup> <sub>4</sub> Fe <sup>II</sup> [Fe(CN) <sub>6</sub> ] <sub>3</sub> .....	1664.1	.....	dec. 180°
13	hydrate.....	Fe <sub>2</sub> O <sub>3</sub> ·4H <sub>2</sub> O.....	303.76	.....	decomp.
14	oxide.....	Fe <sub>2</sub> O <sub>3</sub> .....	231.70	4.96-5.40	.....
15	sulphide†.....	Fe <sub>2</sub> S <sub>3</sub> .....	305.94	4.51-4.64	.....
16	Fluorine.....	F <sub>2</sub> .....	38	{ 1.31 <sup>15°</sup> A. 1.14-187°	- 223°
17	Fluosilicic Acid.....	H <sub>2</sub> SiF <sub>6</sub> .....	144.42	1.225 <sup>4</sup>	8.6°
18	Formic Acid.....	H. COOH.....	46.02	1.225 <sup>4</sup>	8.6°
19	Gadolinium.....	Gd.....	156	1.31A.....	.....
20	acetate.....	Gd <sub>2</sub> (C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>3</sub> ·4H <sub>2</sub> O.....	405.14	1.611	.....
21	bromide.....	GdBr <sub>3</sub> ·6H <sub>2</sub> O.....	503.98	2.844	.....
22	chloride.....	GdCl <sub>3</sub> ·6H <sub>2</sub> O.....	370.45	2.424	.....
23	nitrate.....	Gd(NO <sub>3</sub> ) <sub>3</sub> ·6½H <sub>2</sub> O.....	459.22	2.332	.....
24	oxalate.....	Gd <sub>2</sub> (C <sub>2</sub> O <sub>4</sub> ) <sub>3</sub> ·10H <sub>2</sub> O.....	756.16	.....	6H <sub>2</sub> O, 110°
25	potassium sulphate	Gd <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> ·K <sub>2</sub> SO <sub>4</sub> · 2H <sub>2</sub> O.....	810.57	3.503 <sup>16°</sup>	.....
26	selenate.....	Gd <sub>2</sub> (SeO <sub>4</sub> ) <sub>3</sub> ·8H <sub>2</sub> O.....	885.73	3.309	8H <sub>2</sub> O, 130°
27	sulphate.....	Gd <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	600.18	4.139 <sup>14.6°</sup>	.....
28	".....	Gd <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> ·8H <sub>2</sub> O.....	744.31	3.010	.....
29	Gallium.....	Ga.....	70	5.95 <sup>24°</sup>	30.15°
30	bromide.....	GaBr <sub>3</sub> .....	309.88	.....	.....
31	chloride di-.....	GaCl <sub>2</sub> .....	140.90	.....	164°
32	" tri-.....	GaCl <sub>3</sub> .....	176.35	2.36 <sup>18</sup>	75.5°
33	hydroxide.....	Ga(OH) <sub>3</sub> .....	121.02	.....	.....
34	iodide.....	GaI <sub>3</sub> .....	451.91	.....	.....
35	nitrate.....	Ga(NO <sub>3</sub> ) <sub>3</sub> .....	256.12	.....	dec. 110°
36	oxide mon-.....	GaO.....	86.00	.....	.....
37	" sesqui-.....	Ga <sub>2</sub> O <sub>3</sub> .....	188.00	.....	.....

\* Loses 6H<sub>2</sub>O at 100°, 7H<sub>2</sub>O at 300°.

† For other compounds see "iron."

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1		insoluble		sol. acids; insol. alk.	black.
2		soluble		soluble alcohol	green.
3		insoluble		soluble acids.	monoclinic.
4		soluble	soluble		golden needles.
5		60.91°	333100°	insoluble alcohol	[or rhombic blue green mono.
6		s. soluble		soluble acids.	black hexagonal
7		s. soluble		soluble SO <sub>2</sub> aq.	
8		v. soluble		v. soluble al., ether.	green rhombic.
9		0.87715.6°		v. soluble alcohol.	crystals.
10		v. soluble	decomp.	v. soluble alcohol.	green crystals.
11		deliques.			yellow.
12		insoluble		sol. conc. hot HCl.	green.
13		insoluble	insoluble	soluble acids.	black.
14		insoluble	insoluble	insoluble alcohol.	black octahed.
15		insoluble		soluble acids.	hexagonal.
16	-187°	decomp.	decomp.		greenish-yellow.
17		soluble			
18	101°	∞	∞		
19					
20		s. soluble			triclinic.
21		soluble	soluble		rhombic plates.
22		soluble	soluble		quad. pyramids.
23		v. soluble	v. soluble		asymmetrical.
24		0.11		soluble conc. HNO <sub>3</sub> .	monoclinic.
25		soluble	soluble	soluble K <sub>2</sub> SO <sub>4</sub> .	crystalline.
26		soluble	soluble		pearly monocl.
27		3.98°	2.2634.4°		
28		soluble	soluble		monoclinic.
29		insoluble	insoluble	soluble acids, alkalies.	gray octahed.
30		deliques.	soluble		crystalline.
31	535°	deliques.	decomp.		crystalline.
32	215-220°	deliques.	decomp.		needles.
33		insoluble		soluble acids, alkalies.	
34	deliques.	soluble			hexagonal.
35	†	deliques.	v. soluble		
36		insoluble		soluble acids.	grayish blue.
37		insoluble		soluble acids.	

† Converted into Ga<sub>2</sub>O<sub>3</sub> at 200°.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Gallium sulphate . . .	Ga <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> . . . . .	428.18	.....	.....
2	sulphide . . . . .	Ga <sub>2</sub> S <sub>3</sub> . . . . .	236.18	.....	.....
3	Germanium . . . . .	Ge . . . . .	72.5	5.469††	900°
4	bromide . . . . .	GeBr <sub>4</sub> . . . . .	392.34	.....	about 0°
5	chloride di- . . . . .	GeCl <sub>2</sub> . . . . .	143.40	.....	.....
6	“ tetra- . . . . .	GeCl <sub>4</sub> . . . . .	214.30	1.88718°	liquid.
7	chloroform . . . . .	GeHCl <sub>3</sub> . . . . .	179.86	.....	liquid.
8	ethide . . . . .	Ge(C <sub>2</sub> H <sub>5</sub> ) <sub>4</sub> . . . . .	188.66	.....	.....
9	fluoride . . . . .	GeF <sub>4</sub> ·3H <sub>2</sub> O . . . . .	202.55	.....	decomp.
10	iodide . . . . .	GeI <sub>4</sub> . . . . .	580.38	20.544°	144°
11	oxide mon- . . . . .	GeO . . . . .	88.50	.....	.....
12	“ di- . . . . .	GeO <sub>2</sub> . . . . .	104.50	4.70318°	.....
13	oxychloride . . . . .	GeOCl <sub>2</sub> . . . . .	159.40	.....	.....
14	sulphide mono- . . . . .	GeS . . . . .	104.56	3.541100°	red heat
15	“ di- . . . . .	GeS <sub>2</sub> . . . . .	136.62	.....	.....
16	Glucium (Beryllium)	Gl . . . . .	9.1	1.852°	> 960°
17	bromide . . . . .	GlBr <sub>2</sub> . . . . .	169.02	.....	601°
18	carbide . . . . .	GlC . . . . .	30.2	1.915°	.....
19	carbonate . . . . .	GlCO <sub>3</sub> ·4H <sub>2</sub> O . . . . .	141.16	.....	.....
20	“ basic . . . . .	(GlO) <sub>2</sub> ·CO <sub>2</sub> ·5H <sub>2</sub> O . . . . .	259.58	.....	.....
21	chloride . . . . .	GlCl <sub>2</sub> . . . . .	80.00	.....	400°
22	“ . . . . .	GlCl <sub>2</sub> ·4H <sub>2</sub> O . . . . .	152.06	.....	.....
23	fluoride . . . . .	GlF <sub>2</sub> . . . . .	47.1	2.115°	800°
24	hydroxide . . . . .	Gl(OH) <sub>2</sub> . . . . .	43.12	.....	decomp.
25	iodide . . . . .	GlI <sub>2</sub> . . . . .	263.04	4.2015°	510°
26	nitrate . . . . .	Gl(NO <sub>3</sub> ) <sub>2</sub> ·3H <sub>2</sub> O . . . . .	187.23	.....	90°
27	oxide . . . . .	GlO . . . . .	25.10	3.016°	infusible
28	oxychloride . . . . .	GlOCl <sub>2</sub> . . . . .	105.10	.....	.....
29	potassium fluoride . . . . .	GlF <sub>2</sub> ·2KF . . . . .	163.40	.....	.....
30	sodium fluoride . . . . .	GlF <sub>2</sub> ·2NaF . . . . .	131.20	.....	.....
31	sulphate . . . . .	GlSO <sub>4</sub> ·4H <sub>2</sub> O . . . . .	177.22	1.712510.5°	2H <sub>2</sub> O, 100°
32	“ . . . . .	GlSO <sub>4</sub> ·7H <sub>2</sub> O . . . . .	231.27	.....	.....
33	Gold ¶ . . . . .	Au . . . . .	197.2	19.32	1065°
34	colloidale . . . . .	Au . . . . .	197.2	.....	.....
35	phosphide . . . . .	Au <sub>2</sub> P <sub>3</sub> . . . . .	487.4	6.67	decomp.
36	Helium . . . . .	He . . . . .	4	{ 0.1368A. 1.98D.	< -271.3
37	Hydrazine . . . . .	NH <sub>2</sub> ·NH <sub>2</sub> . . . . .	32.11	1.0131†	1.4°
38	azoimid . . . . .	N <sub>2</sub> H <sub>4</sub> ·HN <sub>3</sub> . . . . .	75.24	.....	65°
39	dihydrochloride . . . . .	N <sub>2</sub> H <sub>4</sub> ·H <sub>2</sub> Cl <sub>2</sub> . . . . .	105.03	.....	198°
40	formate . . . . .	N <sub>2</sub> H <sub>4</sub> ·(H <sub>2</sub> CO <sub>2</sub> ) <sub>2</sub> . . . . .	124.14	.....	128°

\* Volatile at 1350°. † Sublimes at 450°.

‡ decomposes at 100°.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	v. soluble	v. soluble	soluble al.; insol. ether	.....
2	.....	.....	.....	.....	white.
3*	.....	insoluble	insoluble	sol. hot conc. $\text{H}_2\text{SO}_4$ , aq. r.	gray reg. oct...
4	.....	decomp.	.....	.....	.....
5	.....	decomp.	.....	.....	.....
6	86°	decomp.	.....	insol. hot conc. $\text{H}_2\text{SO}_4$	.....
7	72°	.....	.....	.....	.....
8	160°	insoluble	.....	soluble HCl	.....
9	.....	deliques.	soluble	.....	crystalline.
10	350–400°	deliques.	soluble	.....	yellow.
11	.....	soluble	.....	soluble HCl	grayish black..
12	.....	0.4 <sup>20°</sup>	1.05 <sup>100°</sup>	soluble acids, alkalies	rhombic.
13	>100°	insoluble	.....	soluble acids	.....
14	.....	0.25	soluble	soluble HCl, KOH	rhomb. or mon.
15	.....	0.45	soluble	insol. acids; sol. alk.	.....
16	.....	insoluble	insoluble	sol. dil. a., alkalies	grayish hexag..
17†	.....	deliques.	v. soluble	.....	needles.
18	.....	decomp.	decomp.	soluble acids	yellow hexag..
19	.....	0.36°	.....	.....	.....
20	.....	insoluble	decomp.	soluble acids, alk.	.....
21	500°	deliques.	v. soluble	v. soluble alcohol	needles.
22	.....	deliques.	v. soluble	soluble alcohol	crystalline.
23	.....	∞ soluble	∞ soluble	soluble al., $\text{H}_2\text{SO}_4$	.....
24	.....	insoluble	.....	sol. acids, alk., $(\text{NH}_4)_2\text{CO}_3$	.....
25	585–595°	decomp.	decomp.	sol. al., ether, $\text{CS}_2$	needles.
26‡	.....	deliques.	v. soluble	v. soluble alcohol	crystalline.
27	.....	insoluble	.....	sol. acids, alk.	hexagonal.
28	.....	insoluble	.....	.....	.....
29	.....	220°	5.26 <sup>100°</sup>	.....	.....
30	.....	1.47 <sup>18°</sup>	2.94 <sup>100°</sup>	.....	.....
31	decomp.	100 <sup>14°</sup>	∞	insoluble alcohol	tetragonal.
32	.....	.....	.....	$[\text{Cl}_2\text{H}_2\text{O}]$	monoclinic.
33	.....	insoluble	insoluble	insol. a.; sol. KCN, aq. r.	yellow regular
34	.....	soluble	.....	insol. a.; sol. alk., aq. r.	blue violet
35	.....	.....	.....	insol. HCl; dec. by $\text{HNO}_3$	gray.
36	–267°	1.487 c.c. <sup>0.5</sup>	1.371 c.c. <sup>25</sup>	absorbed by platinum.	.....
37	113.5°	v. soluble	.....	soluble alcohol	crystalline.
38	.....	deliques.	v. soluble	v. soluble alcohol	.....
39	.....	soluble	v. soluble	soluble alcohol	regular.
40	.....	soluble	.....	.....	regular.

† For other compounds of Gold see "Auric" and "Aurous."

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Hydrazine hydroxide	N <sub>2</sub> H <sub>4</sub> .H <sub>2</sub> O	50.13	1.0305 <sup>21</sup>	< -40°
2	sulphate	N <sub>2</sub> H <sub>4</sub> .H <sub>2</sub> SO <sub>4</sub>	130.19		254°
3	nitrate	N <sub>2</sub> H <sub>4</sub> .HNO <sub>3</sub>	95.16		69°
4	Hydrazoic Acid	HN <sub>3</sub>	43.13		
5	Hydrobromic Acid	HBr	80.97	1.278A.	-86.13°
6	" "	HBr.H <sub>2</sub> O	98.99	1.78	
7	Hydrochloric Acid	HCl	36.46	1.195 <sup>8</sup>	-112.5°
8	Hydrocyanic Acid	HCN	27.05	0.697 <sup>18</sup>	-15°
9	Hydrofluoric Acid	HF	20.01	0.9879 <sup>15</sup>	-92.3°
10	Hydroiodic Acid	HI	127.98	4.3737A.	-51.3°
11	Hydrogen	H <sub>2</sub>	2.016	0.06949A.	-256.5°
12	peroxide	H <sub>2</sub> O <sub>2</sub>	34.02	1.4584 <sup>0</sup>	-2°
13	persulphide	H <sub>2</sub> S <sub>2</sub>	66.14	1.734	
14	selenide	H <sub>2</sub> Se	81.22		-64°
15	sulphide	H <sub>2</sub> S	34.08	0.9.1.1895A.	-85.5°
16	telluride	H <sub>2</sub> Te	129.62	65.1D	-48°
17	Hydroxylamine	NH <sub>2</sub> OH	33.06	1.227 <sup>4</sup>	33.05°
18	hydrochloride	NH <sub>2</sub> OH.HCl	69.52		151°
19	nitrate	NH <sub>2</sub> OH.HNO <sub>3</sub>	96.11		-10°
20	sulphate	(NH <sub>2</sub> OH) <sub>2</sub> .H <sub>2</sub> SO <sub>4</sub>	164.20		170°
21	Indium	In	115	7.12 <sup>3</sup>	155°
22	bromide	InBr <sub>3</sub>	354.88		
23	chloride mono-	InCl	150.45		
24	" di-	InCl <sub>2</sub>	185.90		
25	" tri-	InCl <sub>3</sub>	221.35		
26	cyanide	In(CN) <sub>3</sub>	193.12		
27	fluoride	In <sub>2</sub> F <sub>6</sub> .18H <sub>2</sub> O	668.29		decomp.
28	hydroxide	In(OH) <sub>3</sub>	166.02		*
29	iodide	InI <sub>3</sub>	495.91		v. fusible
30	nitrate	In(NO <sub>3</sub> ) <sub>3</sub> .4½H <sub>2</sub> O	382.19		4½H <sub>2</sub> O, 10°
31	oxide mon-	InO	131.00		
32	" sesqui-	In <sub>2</sub> O <sub>3</sub>	278.00	7.179	infusible
33	sulphate	In <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub>	518.18	3.438	
34	sulphide	In <sub>2</sub> S <sub>3</sub>	326.18		infusible
35	sulphite	2In <sub>2</sub> O <sub>3</sub> .3SO <sub>2</sub> .8H <sub>2</sub> O	892.31		3H <sub>2</sub> O, 100°
36	Iodic Acid	HIO <sub>3</sub>	175.98	4.629 <sup>0</sup>	½H <sub>2</sub> O, 190°
37	Iodine	I <sub>2</sub>	253.94	4.948 <sup>17</sup>	114.2°

\* Sublimes at white heat.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (Al.), Acids (a.), Alkalies (alk.), etc.	
1	119°	∞	v. soluble	∞ sol. al.; insol. ether.	.....
2	.....	s. soluble	v. soluble	insoluble alcohol.....	tables.....
3	.....	.....	.....	.....	.....
4	37°	∞	.....	soluble alcohol.....	liquid.....
5	-68.7°	221.2°	130 <sup>100°</sup>	soluble alcohol.....	crystalline.....
6	.....	.....	.....	.....	.....
7	-83.1°	82.5 <sup>10°</sup>	56.1 <sup>60°</sup>	soluble alcohol, ether..	.....
8	26.1°	∞	.....	∞ sol. al., ether.....	crystalline.....
9	19.44°	264	.....	.....	.....
10	36.7°	42500 c.c. <sup>10°</sup>	.....	soluble alcohol.....	.....
11	-252.5°	2.1 c.c. <sup>0.5°</sup>	.....	sol. palladium, charcoal, Pt., Fe., etc.	.....
12	80.2° (47mm.)	∞	.....	sol. ether, al.....	prisms.....
13	.....	decomposes	.....	sol. CS <sub>2</sub> , benz.; insol. al.	yellowish oil. .
14	-42°	331 c.c. <sup>13°</sup>	.....	soluble CS <sub>2</sub> .....	.....
15	-61.8°	437 c.c. <sup>0°</sup>	291 c.c. <sup>20°</sup>	9.54 <sup>20°</sup> vol. al.....	.....
16	0	soluble	.....	.....	.....
17	70 (60mm.)	soluble	decomp.	soluble alcohol, acids...	crystalline.....
18	decomp.	v. soluble	.....	sol. al.; insol. ether.....	monoclinic.....
19	dec.>100°	v. soluble	decomp.	v. soluble alcohol.....	.....
20	.....	v. soluble	soluble	s. soluble alcohol.....	monoclinic.....
21	red heat	insoluble	insoluble	soluble acids.....	regular octahed.
22	.....	deliques.	v. soluble	.....	crystalline.....
23	.....	deliques.	decomp.	.....	dark red cryst..
24	.....	deliques.	decomp.	.....	crystalline.....
25	440°	deliques.	v. soluble	s. sol. al., ether.....	.....
26	.....	insoluble	.....	sol. HCN.....	.....
27	.....	s. soluble	decomp.	sol. HCl, HNO <sub>3</sub> ; insol. al., ether	needles.....
28	.....	insoluble	.....	sol. acids, alk.; insol. NH <sub>3</sub>	.....
29	.....	deliques.	.....	.....	yellow crystals.
30	decomp.	deliques.	soluble	soluble alcohol.....	needles.....
31	.....	insoluble	.....	soluble acids.....	black.....
32	†	insoluble	.....	sol. acids, insol. NH <sub>3</sub> ...	yel. amor. rh'bh.
33	.....	deliques.	v. soluble	.....	.....
34	.....	.....	.....	dec. by a.; sol. (NH <sub>4</sub> ) <sub>2</sub> S	yellow.....
35	†	insoluble	.....	soluble acids.....	crystalline.....
36	.....	286°	471 <sup>80°</sup>	v. soluble alcohol, HNO <sub>3</sub>	trimetric.....
37	184.35°	0.0182 <sup>11°</sup>	0.045 <sup>30°</sup>	sol. KI, CS <sub>2</sub> , al., CHCl <sub>3</sub> , ether	gray black..... rhombic

† Volatile at 850°.

‡ Loses 8H<sub>2</sub>O at 260°.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A) H <sub>2</sub> = 1 (D).	Melting Point, °C.
	<b>Iodine</b>				
1	chloride mono- α	ICl.....	162.42	3.1822†	24.7°
2	“ “ β	ICl.....	162.42	.....	13.9
3	“ tri-.....	ICl <sub>3</sub> .....	233.32	3.1107	33°
4	fluoride.....	IF <sub>5</sub> .....	221.97	.....	8°
5	monobromide.....	IBr.....	206.93	.....	36°
6	oxide di-.....	IO <sub>2</sub> .....	158.97	.....	*
7	“ pent-.....	I <sub>2</sub> O <sub>5</sub> .....	333.94	4.25-4.80	dec. 300°
8	<b>Iridium</b>	Ir.....	193.0	15.86	2250°
9	“ .....	Ir.....	193.0	22.42	1950°
10	bromide tri-.....	IrBr <sub>3</sub> .4H <sub>2</sub> O.....	504.94	.....	[120° 3H <sub>2</sub> O, 100-
11	“ tetra-.....	IrBr <sub>4</sub> .....	512.84	.....	decomp.
12	chloride di-.....	IrCl <sub>2</sub> .....	263.90	.....	.....
13	“ tri-.....	IrCl <sub>3</sub> .....	299.35	.....	.....
14	“ tetra-.....	IrCl <sub>4</sub> .....	334.80	.....	decomp.
15	hydroxide di-.....	IrO <sub>2</sub> .2H <sub>2</sub> O.....	261.03	.....	.....
16	“ sesqui-.....	Ir <sub>2</sub> O <sub>3</sub> .3H <sub>2</sub> O.....	488.05	.....	.....
17	iodide tri-.....	IrI <sub>3</sub> .....	573.91	.....	.....
18	“ tetra-.....	IrI <sub>4</sub> .....	700.88	.....	dec. 360°
19	oxide di-.....	IrO <sub>2</sub> .....	225.00	.....	.....
20	“ sesqui-.....	Ir <sub>2</sub> O <sub>3</sub> .....	431.00	.....	dec. 1000°
21	sulphide mono-.....	IrS.....	225.06	.....	oxidizes
22	“ di-.....	IrS <sub>2</sub> .....	257.12	.....	oxidizes
23	“ sesqui-.....	Ir <sub>2</sub> S <sub>3</sub> .....	482.18	.....	oxidizes
24	<b>Iron pure</b>	Fe.....	55.9	7.85-7.88	1804°
25	wrought.....	Fe.....	55.9	7.86	1600°
26	white pig.....	Fe.....	55.9	7.58-7.73	1075°
27	gray pig.....	Fe.....	55.9	7.03-7.13	1275°
28	steel.....	Fe.....	55.9	7.60-7.80	1375°
29	cast steel.....	Fe.....	55.9	.....	1375°
30	boride.....	FeB.....	66.9	7.15 <sup>18°</sup>	.....
31	carbide.....	Fe <sub>3</sub> C.....	179.7	7.07 <sup>18°</sup>	.....
32	“ .....	FeC <sub>4</sub> .....	103.90	.....	.....
33	carbonyl.....	Fe(CO) <sub>5</sub> .....	195.90	1.47	-21°
34	disulphide.....	FeS <sub>2</sub> .....	120.05	4.86-5.18	decomp.
35	nitride.....	Fe <sub>2</sub> N.....	125.84	6.35	dec. 200°

\* Decomposes between 170° and 180°.



Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	101.3°	decomp.	.....	{ sol. al., CS <sub>2</sub> , ether, ...	dark red needles
2	101.3°	decomp.	.....	{ glacial H.C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> .....	reddish brown rhomb. plates
3	.....	soluble	decomp.	sol. al., ether, HCl, glac. H.C <sub>2</sub> H <sub>3</sub> O <sub>2</sub>	yellow crystals.
4	97°	decomp.	decomp.	decomposes acids .....	liquid .....
5	.....	s. soluble	.....	sol. al., CS <sub>2</sub> , ether .....	dark gray cryst.
6	.....	insoluble	decomp.	insol. al.; sol. H <sub>2</sub> SO <sub>4</sub> .....	yellow .....
7	187.413°	.....	.....	insol. al., CS <sub>2</sub> , ether .....	trimetric .....
8	.....	insoluble	insoluble	sol. aq. r., Cl <sub>2</sub> .H <sub>2</sub> O .....	white spongy ..
9	.....	insoluble	insoluble	insol. a., aqua regia .....	reg. or hexagon. rhombohedral
10	.....	soluble	.....	insoluble alcohol, ether.	olive gr. cryst..
11	.....	soluble	.....	soluble alcohol .....	blue crystals..
12	.....	insoluble	.....	.....	blackish green ..
13	.....	soluble	.....	insoluble acids, alkalies.	olive green ....
14	.....	soluble	decomp.	soluble alcohol .....	dark red .....
15	.....	insoluble	.....	soluble HCl, alk. ....	indigo blue .....
16	.....	insoluble	.....	insoluble acids .....	black .....
17	.....	s. soluble	soluble	insoluble alcohol .....	black crystals..
18	.....	insoluble	insoluble	soluble KI, NaI .....	black .....
19	.....	insoluble	.....	insoluble acids .....	black .....
20	.....	insoluble	.....	insoluble acids .....	blue black .....
21	.....	insoluble	.....	insol. acids; sol. K <sub>2</sub> S .....	blue black .....
22	.....	insoluble	.....	insol. acids; sol. K <sub>2</sub> S .....	black .....
23	.....	s. soluble	.....	soluble HNO <sub>3</sub> , K <sub>2</sub> S .....	brown black ..
24	.....	insoluble	insoluble	sol. acids; insol. alk. ....	cubical or reg. octahedral...
25	.....	insoluble	insoluble	sol. acids; insol. alk. ....	.....
26	.....	insoluble	insoluble	sol. acids; insol. alk. ....	.....
27	.....	insoluble	insoluble	sol. acids; insol. alk. ....	.....
28	.....	insoluble	insoluble	sol. acids; insol. alk. ....	.....
29	.....	insoluble	insoluble	sol. acids; insol. alk. ....	.....
30	.....	insoluble	.....	sol. HNO <sub>3</sub> , hot conc. H <sub>2</sub> SO <sub>4</sub>	gray crystals..
31	.....	insoluble	insoluble	soluble acids .....	regular .....
32	.....	insoluble	.....	s. soluble HCl .....	gray crystals..
33	103°	.....	.....	sol. conc. H <sub>2</sub> SO <sub>4</sub> , al., alk.	yellow. {rhomb.
34	.....	insoluble	.....	insoluble dil. acids .....	yellow reg. or
35	.....	decomp.	.....	sol. HCl, H <sub>2</sub> SO <sub>4</sub> .....	.....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Iron* phosphide . . . . .	Fe <sub>2</sub> P . . . . .	142.80	6.57 <sup>15</sup>	infusible
2	Krypton . . . . .	Kr . . . . .	81.8	{ 2.818A. 40.78D.	−169°
3	Lactic Acid . . . . .	H.C <sub>3</sub> H <sub>5</sub> O <sub>3</sub> . . . . .	90.05	1.2485 <sup>4</sup>	< −24°
4	Lanthanum . . . . .	La . . . . .	138.9	6.1545	810°
5	bromide . . . . .	LaBr <sub>3</sub> .7H <sub>2</sub> O . . . . .	504.89	.....	.....
6	carbide . . . . .	LaC <sub>2</sub> . . . . .	162.90	5.02 <sup>20</sup>	.....
7	carbonate . . . . .	La <sub>2</sub> (CO <sub>3</sub> ) <sub>3</sub> .8H <sub>2</sub> O . . . . .	601.93	.....	.....
8	chloride . . . . .	LaCl <sub>3</sub> . . . . .	245.25	3.947 <sup>4</sup>	907°
9	" . . . . .	LaCl <sub>3</sub> .7H <sub>2</sub> O . . . . .	371.36	.....	.....
10	nitrate . . . . .	La(NO <sub>3</sub> ) <sub>3</sub> .6H <sub>2</sub> O . . . . .	433.12	.....	40°
11	oxalate . . . . .	La <sub>2</sub> (C <sub>2</sub> O <sub>4</sub> ) <sub>3</sub> .9H <sub>2</sub> O . . . . .	703.94	.....	.....
12	oxide sesqui- . . . . .	La <sub>2</sub> O <sub>3</sub> . . . . .	325.80	6.41 <sup>15</sup>	infusible
13	sulphate . . . . .	La <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> . . . . .	565.98	3.600	dec. 1150°
14	" . . . . .	La <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .9H <sub>2</sub> O . . . . .	728.12	2.821	decomp.
15	sulphide . . . . .	La <sub>2</sub> S <sub>3</sub> . . . . .	373.98	4.911 <sup>11</sup>	.....
16	Lead . . . . .	Pb . . . . .	206.9	11.34	327°
17	acetate (sugar of) . . . . .	Pb(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> .3H <sub>2</sub> O . . . . .	379.00	2.50	75°, 3H <sub>2</sub> O
18	" basic . . . . .	Pb <sub>2</sub> (C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>3</sub> OH . . . . .	607.88	.....	.....
19	" " . . . . .	Pb(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> Pb(OH) <sub>2</sub> .H <sub>2</sub> O . . . . .	583.88	.....	.....
20	" " . . . . .	Pb(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> .2Pb (OH) <sub>2</sub> . . . . .	806.78	.....	.....
21	azoimide . . . . .	PbN <sub>4</sub> . . . . .	291.14	.....	.....
22	borate . . . . .	Pb(BO <sub>2</sub> ) <sub>2</sub> .H <sub>2</sub> O . . . . .	310.92	5.598(anhy)	red heat
23	bromate . . . . .	Pb(BrO <sub>3</sub> ) <sub>2</sub> .H <sub>2</sub> O . . . . .	480.84	.....	dec. 180°
24	bromide . . . . .	PbBr <sub>2</sub> . . . . .	366.82	6.572 <sup>19.2</sup>	363°
25	carbonate . . . . .	PbCO <sub>3</sub> . . . . .	266.90	6.43	.....
26	" basic . . . . .	2PbCO <sub>3</sub> .Pb(OH) <sub>2</sub> . . . . .	774.72	.....	decomp.
27	chlorate . . . . .	Pb(ClO <sub>3</sub> ) <sub>2</sub> .H <sub>2</sub> O . . . . .	391.82	4.037	dec. 230°
28	chloride . . . . .	PbCl <sub>2</sub> . . . . .	277.80	5.80	447°
29	" tetra- . . . . .	PbCl <sub>4</sub> . . . . .	348.70	3.18°	−15°
30	chlorite . . . . .	Pb(ClO <sub>2</sub> ) <sub>2</sub> . . . . .	341.80	.....	.....
31	chromate . . . . .	PbCrO <sub>4</sub> . . . . .	232.00	6.123 <sup>15</sup>	fusible
32	" basic (chrome red) . . . . .	PbCrO <sub>4</sub> .PbO . . . . .	545.90	.....	.....
33	cyanate . . . . .	Pb(CNO) <sub>2</sub> . . . . .	290.98	.....	decomp.
34	cyanide . . . . .	Pb(CN) <sub>2</sub> . . . . .	258.98	.....	.....

\* For other compounds of Iron see "Ferrous" and "Ferric."

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	insoluble	insoluble	insol. acids; sol. $\text{HNO}_3$ + HF	gray crystals...
2	-151.7	.....	.....	.....	.....
3	.....	$\infty$	$\infty$	$\infty$ sol. al.; s. sol. ether	.....
4	.....	decomp.	decomp.	soluble acids	lead gray
5	.....	v. soluble	.....	v. sol. al.; insol. ether	.....
6	.....	decomp.	decomp.	soluble acids	yellow crystals
7	.....	insoluble	.....	s. soluble, $\text{CO}_2$ aq.	trimetric
8	.....	v. soluble	decomp.	v. soluble alcohol	white crystals
9	.....	v. soluble	.....	v. soluble alcohol	triclinic
10	126	deliques.	v. soluble	v. soluble alcohol	prismatic
11	.....	insoluble	.....	.....	.....
12	.....	s. soluble	.....	soluble al., acids, $\text{NH}_4\text{Cl}$	rhombic
13	.....	16.6 <sup>20-30</sup>	0.87 <sup>100</sup>	s. soluble alcohol	.....
14	.....	20.3 <sup>20-30</sup>	1.06 <sup>100</sup>	s. soluble alcohol	hexagonal
15	.....	insoluble	decomp.	soluble dilute acids	red-yellow crys.
16	1400-1600	insoluble	insoluble	sol. $\text{HNO}_3$ , hot conc. $\text{H}_2\text{SO}_4$	regular or monoclinic
17	280	45.64 <sup>15</sup>	200 <sup>100</sup>	insoluble alcohol	monoclinic
18	.....	v. soluble	.....	s. soluble alcohol	.....
19	.....	v. soluble	.....	v. soluble alcohol	needles
20	.....	5.55	18.2	soluble alcohol	needles
21	.....	0.05	s. soluble	v. soluble $\text{H.C}_2\text{H}_3\text{O}_2$	crystalline
22	†	insoluble	insoluble	insol. alk., sol. acids	crystalline
23	.....	1.38 <sup>20</sup>	.....	.....	monoclinic
24	861	0.455 <sup>0</sup>	4.75 <sup>100</sup>	sol. acids, KBr; insol. al.	rhombic
25	.....	0.00198	decomp.	insoluble alcohol	rhombic
26	.....	insoluble	insoluble	0.02 $\text{CO}_2$ aq.	amorphous
27	.....	v. soluble	soluble	soluble	monoclinic
28	861-954	0.673 <sup>0</sup>	3.34 <sup>100</sup>	0.09 dil. HCl, insol. al.	rhombic
29	†	decomp.	decomp.	.....	.....
30	.....	s. soluble	soluble	.....	yellow monocl.
31	.....	.00002 <sup>18</sup>	insoluble	sol. acids, alk.; insol. $\text{H.C}_2\text{H}_3\text{O}_2$	yellow monocl.
32	.....	insoluble	insoluble	soluble acids, alkalies	red crystals
33	.....	insoluble	s. soluble	.....	crystals
34	.....	s. soluble	soluble	insoluble KCN	.....

† Loses  $\text{H}_2\text{O}$  at 160°.

† Decomposes at 105°.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Lead dichromate. . . . .	PbCr <sub>2</sub> O <sub>7</sub> . . . . .	423. 10	.....	.....
2	dithionate. . . . .	PbS <sub>2</sub> O <sub>6</sub> .4H <sub>2</sub> O. . . . .	439. 08	3. 245	decomp.
3	ferricyanide. . . . .	Pb <sub>2</sub> [Fe(CN) <sub>6</sub> ]. <sub>2</sub> .6H <sub>2</sub> O. . . . .	1333. 2	.....	decomp.
4	ferrocyanide. . . . .	Pb <sub>2</sub> Fe(CN) <sub>6</sub> .3H <sub>2</sub> O. . . . .	679. 99	.....	decomp.
5	fluoride. . . . .	PbF <sub>2</sub> . . . . .	244. 90	8. 24	fusible
6	formate. . . . .	Pb(CHO <sub>2</sub> ) <sub>2</sub> . . . . .	296. 92	4. 571	dec. 190°
8	hydroxide. . . . .	2PbO.H <sub>2</sub> O. . . . .	483. 82	.....	dec. 145°
9	"	3PbO.H <sub>2</sub> O. . . . .	686. 72	7. 592	H <sub>2</sub> O, 130°
10	iodate. . . . .	Pb(IO <sub>3</sub> ) <sub>2</sub> . . . . .	556. 84	.....	.....
11	iodide. . . . .	PbI <sub>2</sub> . . . . .	460. 84	6. 12	373°
12	nitrate. . . . .	Pb(NO <sub>3</sub> ) <sub>2</sub> . . . . .	330. 98	4. 53 <sup>24</sup>	*
13	oxalate. . . . .	PbC <sub>2</sub> O <sub>4</sub> . . . . .	294. 9	5. 025	dec. 300°
14	oxide mon-. . . . .	PbO. . . . .	222. 90	9. 375	585°-630°
15	" "	PbO. . . . .	222. 90	8. 74 <sup>14</sup>	.....
16	" "	PbO. . . . .	222. 90	9. 2-9. 5	red heat
17	" sub-. . . . .	Pb <sub>2</sub> O. . . . .	429. 80	8. 342	.....
18	" sesqui-. . . . .	Pb <sub>2</sub> O <sub>3</sub> . . . . .	461. 80	.....	dec. 370°
19	" red (minium) . . . . .	Pb <sub>3</sub> O <sub>4</sub> . . . . .	684. 70	9. 096 <sup>15</sup>	dec. 500°-530°
20	" per-. . . . .	PbO <sub>2</sub> . . . . .	238. 90	8. 91	decomp.
21	oxychloride. . . . .	PbCl <sub>2</sub> .PbO. . . . .	500. 70	7. 21	.....
22	"	PbCl <sub>2</sub> .2PbO. . . . .	723. 60	7-7. 1	.....
23	"	PbCl <sub>2</sub> .3PbO. . . . .	946. 50	.....	.....
24	"	PbCl <sub>2</sub> .7PbO. . . . .	1838. 1	.....	.....
	(cosselet yellow)				
25	perchlorate. . . . .	Pb(ClO <sub>4</sub> ) <sub>2</sub> .3H <sub>2</sub> O. . . . .	459. 85	.....	.....
26	periodate. . . . .	PbHIO <sub>5</sub> . . . . .	414. 88	.....	dec. 130°
27	"	PbHIO <sub>5</sub> .H <sub>2</sub> O. . . . .	432. 89	.....	†
28	persulphate. . . . .	PbS <sub>2</sub> O <sub>8</sub> .3H <sub>2</sub> O. . . . .	453. 07	.....	.....
29	phosphate. . . . .	Pb <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> . . . . .	810. 70	6. 9-7. 3	.....
30	phosphite. . . . .	PbHPO <sub>3</sub> . . . . .	286. 91	.....	decomp.
31	pyrophosphate. . . . .	Pb <sub>2</sub> P <sub>2</sub> O <sub>7</sub> .H <sub>2</sub> O. . . . .	605. 82	.....	806°(anh.)
32	selenide. . . . .	PbSe. . . . .	286. 10	8. 10 <sup>15</sup>	decomp.
33	sulphate. . . . .	PbSO <sub>4</sub> . . . . .	302. 96	6. 23	937°
34	" acid. . . . .	Pb(HSO <sub>4</sub> ) <sub>2</sub> .H <sub>2</sub> O. . . . .	419. 05	.....	.....
35	" basic. . . . .	PbSO <sub>4</sub> .PbO. . . . .	525. 86	.....	.....
36	sulphide. . . . .	PbS. . . . .	238. 96	7. 13-7. 7	1015°
37	sulphite. . . . .	PbSO <sub>3</sub> . . . . .	286. 96	.....	.....

\* Decomposes at 205°-223°.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	decomp.	.....	soluble acids, alkalies ..	red crystalline .
2	.....	soluble	.....	.....	crystalline.....
3	.....	s. soluble	soluble	soluble alkalies, HNO <sub>3</sub> ..	red crystals....
4	.....	insoluble	.....	s. soluble conc., H <sub>2</sub> SO <sub>4</sub> ..	.....
5	.....	0.064 <sup>18°</sup>	.....	soluble HNO <sub>3</sub> .....	.....
7	.....	1.6 <sup>16°</sup>	18 <sup>100°</sup>	insoluble alcohol.....	rhombic.....
8	.....	s. soluble	s. soluble	soluble alkalies.....	.....
9	.....	0.014	.....	soluble alkalies.....	regular.....
10	.....	0.0012 <sup>20°</sup>	.....	s. soluble HNO <sub>3</sub> .....	.....
11	861-954°	0.044 <sup>40°</sup>	0.436 <sup>100°</sup>	insol. al., sol. KI.....	yellow hexag...
12	.....	39 <sup>0°</sup>	138.9 <sup>100°</sup>	8.77 <sup>22°</sup> alcohol.....	octahedral.....
13	.....	s. soluble	.....	insol. al. sol. HNO <sub>3</sub> .....	.....
14	white heat	0.013-02 <sup>20°</sup>	.....	{ soluble alkalies, lead..	yellow rhomb..
15	white heat	insoluble	insoluble	{ acetate, NH <sub>4</sub> Cl, CaCl <sub>2</sub> ,	red hexagonal..
16	white heat	insoluble	insoluble	{ SrCl <sub>2</sub> .....	amorphous....
17	.....	insoluble	.....	dec. by acids, alkalies..	grayish black..
18	.....	insoluble	decomp.	decomp.....	reddish yellow
19	.....	insoluble	.....	sol. glacial H.C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ...	scarlet .[amorp.
20	.....	insoluble	insoluble	insol. al.; sol. glac. H. C <sub>2</sub> H <sub>3</sub> O <sub>2</sub>	brown hexag...
21	.....	insoluble	insoluble	soluble alkalies.....	tetragonal.....
22	.....	insoluble	.....	soluble alkalies.....	yellow trimet...
23	.....	insoluble	.....	.....	yellow.....
24	.....	insoluble	.....	.....	yellow crystals.
25	.....	100°	.....	soluble alcohol.....	.....
26	.....	insoluble	insoluble	soluble dil. HNO <sub>3</sub> .....	crystalline.....
27	.....	insoluble	insoluble	s. soluble dil. HNO <sub>3</sub> ....	amorphous....
28	.....	v. soluble	.....	.....	.....
29	.....	0.000014 <sup>20°</sup>	insoluble	sol. HNO <sub>3</sub> ; insol. H. C <sub>2</sub> H <sub>3</sub> O <sub>2</sub>	.....
30	.....	insoluble	.....	soluble HNO <sub>3</sub> .....	.....
31	.....	insoluble	decomp.	sol. Na <sub>4</sub> P <sub>2</sub> O <sub>7</sub> , HNO <sub>3</sub> , KOH	rhombic.....
32	.....	insoluble	.....	decomp. HNO <sub>3</sub> .....	regular.....
33	.....	0.0042 <sup>20°</sup>	s. soluble	sol. conc. H <sub>2</sub> SO <sub>4</sub> , HCl, NH <sub>4</sub> salts; insol. al...	rhombic.....
34	.....	s. soluble	.....	s. soluble H <sub>2</sub> SO <sub>4</sub> .....	crystalline....
35	.....	0.0044°	s. soluble	s. soluble H <sub>2</sub> SO <sub>4</sub> .....	.....
36	1085°	insoluble	insoluble	sol. conc.; a. insol. KOH	black regular..
37	.....	insoluble	.....	s. sol., H <sub>2</sub> SO <sub>3</sub> sol. HNO <sub>3</sub>	.....

† Loses H<sub>2</sub>O at 110°-120°.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Lead sulphochloride..	3PbS.PbCl <sub>2</sub> .....	994.68	.....	.....
2	sulphocyanate.....	Pb(CNS) <sub>2</sub> .....	323.10	3.82	.....
3	thiosulphate.....	PbS <sub>2</sub> O <sub>3</sub> .....	319.02	.....	decomp.
4	tungstate.....	PbWO <sub>4</sub> .....	454.90	8.235	.....
5	Lithium.....	Li	7.03	0.5936	186°
6	acetate.....	LiC <sub>2</sub> H <sub>3</sub> O <sub>2</sub> .2H <sub>2</sub> O.....	102.09	.....	70°
7	amid.....	LiNH <sub>2</sub> .....	23.09	.....	.....
8	bicarbonate.....	LiHCO <sub>3</sub> .....	68.04	.....	.....
9	bichromate.....	Li <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> .2H <sub>2</sub> O.....	266.29	.....	.....
10	borate.....	Li <sub>2</sub> B <sub>2</sub> O <sub>7</sub> .5H <sub>2</sub> O.....	260.14	.....	.....
11	bromide.....	LiBr.....	86.99	3.466 <sup>†</sup>	442°-547
12	carbide.....	Li <sub>2</sub> C <sub>2</sub> .....	38.06	1.65 <sup>18°</sup>	.....
13	carbonate.....	Li <sub>2</sub> CO <sub>3</sub> .....	74.06	2.111	618-710°
14	chlorate.....	LiClO <sub>3</sub> . $\frac{1}{2}$ H <sub>2</sub> O.....	99.49	.....	50°
15	chloride.....	LiCl.....	42.48	1.998-2.074	491-600°
16	chloroplatinate.....	Li <sub>2</sub> PtCl <sub>6</sub> .6H <sub>2</sub> O.....	529.66	.....	6H <sub>2</sub> O, 180°
17	chromate.....	Li <sub>2</sub> CrO <sub>4</sub> .H <sub>2</sub> O.....	148.18	.....	.....
18	fluoride.....	LiF.....	26.03	2.601	801°
19	fluosilicate.....	Li <sub>2</sub> SiF <sub>6</sub> .2H <sub>2</sub> O.....	192.49	2.33	2H <sub>2</sub> O, 100°
20	formate.....	LiCHO <sub>2</sub> .H <sub>2</sub> O.....	70.05	1.435-1.479	decomp.
21	hydroxide.....	LiOH.....	24.04	.....	red heat..
22	iodide.....	LiI.....	134.00	4.063 <sup>†</sup>	330°-446°
23	".....	LiI.3H <sub>2</sub> O.....	288.05	.....	72°
24	nitrate.....	LiNO <sub>3</sub> .....	69.07	2.334-2.442	253°-264°
25	".....	LiNO <sub>3</sub> .3H <sub>2</sub> O.....	123.12	.....	29.88°
26	oxalate.....	Li <sub>2</sub> C <sub>2</sub> O <sub>4</sub> .....	102.06	2.1213 <sup>17.5°</sup>	decomp.
27	" acid.....	LiHC <sub>2</sub> O <sub>4</sub> .H <sub>2</sub> O.....	114.05	.....	decomp.
28	oxide.....	Li <sub>2</sub> O.....	30.06	2.102 <sup>15°</sup>	.....
29	perchlorate.....	LiClO <sub>4</sub> .....	106.48	1.841	236°
30	".....	LiClO <sub>4</sub> .3H <sub>2</sub> O.....	160.53	.....	95°
31	phosphate.....	Li <sub>3</sub> PO <sub>4</sub> .H <sub>2</sub> O.....	134.11	2.41 <sup>15°</sup>	857°
32	silicate.....	Li <sub>2</sub> SiO <sub>3</sub> .....	90.46	2.529 <sup>15°</sup>	.....
33	silicide.....	Li Si <sub>2</sub> .....	98.98	1.12	decomp.
34	sulphate.....	Li <sub>2</sub> SO <sub>4</sub> .....	110.12	2.210 <sup>15°</sup>	818°-853°
35	".....	Li <sub>2</sub> SO <sub>4</sub> .H <sub>2</sub> O.....	128.14	2.052 <sup>†</sup>	H <sub>2</sub> O, 130°
36	" acid.....	LiHSO <sub>4</sub> .....	104.10	2.123.....	120°
37	sulphide.....	Li <sub>2</sub> S.....	46.12	1.63-1.7	.....
38	sulphite.....	Li <sub>2</sub> SO <sub>3</sub> .6H <sub>2</sub> O.....	202.22	.....	red heat
39	urate.....	LiHC <sub>2</sub> H <sub>2</sub> N <sub>2</sub> O <sub>3</sub> .....	174.21	.....	.....
40	Magnesium.....	Mg	24.36	1.69-1.75	632.6°

\* Decomposes at 600°.

† Loses 1½ H<sub>2</sub>O at 90°.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acid (a.), Alkalies (alk.), etc.	
1		insoluble	decomp.	insoluble dilute acids...	red.....
2		0.52°	decomp.	sol. KCNS, HNO <sub>3</sub> ....	yellow monocl..
3		0.03		soluble Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> .....	
4		insoluble			regular.....
5	>1400°	decomp.	decomp.	soluble acids.....	silvery.....
6	decomp.	300 <sup>15</sup> °	v. soluble	21.5 alcohol.....	rhombic.....
7	430°	decomp.	decomp.		green liquid....
8		5.5 <sup>13</sup> °			
9		150.73°			blk. brown crys.
10		v. soluble		insoluble alcohol.....	
11		143°	270 <sup>103</sup> °		crystalline....
12		decomp.	decomp.	soluble acids.....	crystalline....
13	*	1.539°	0.728 <sup>100</sup> °	insoluble alcohol.....	prisms.....
14	†	deliques.	v. soluble	v. soluble alcohol.....	tetragonal.....
15		63.7°	129 <sup>96</sup> °	2.475 <sup>25</sup> ° al., sol. ether.	octahedral.....
16		soluble	soluble	soluble alcohol, ether..	orange red hex..
17		115 <sup>30</sup> °			red trimetric..
18		s. soluble		soluble HF.....	tablets.....
19	decomp.	52.6		sol. alcohol; insol. ether	monoclinic....
20		soluble	soluble		rhombic.....
21		8.344°	10.021 <sup>100</sup> °	s. soluble alcohol.....	crystalline....
22		151°	476 <sup>99</sup> °		crystalline....
23					{ rh'mb. or hex. rhombohedral or regular...
24		48.3°	227.3 <sup>100</sup> °	soluble alcohol.....	
25					
26		819.5°			
27		817°			
28		5.22°	6.26 <sup>100</sup> °		crystalline....
29		soluble		soluble alcohol.....	
30	‡	soluble		soluble alcohol.....	rhombohedral..
31	§	0.04		soluble acids, NH <sub>4</sub> Cl..	rhomboidal....
32		insoluble	s. decomp.	soluble dil. HCl... [tine	hexagonal.....
33		decomp.	decomp.	dec. by a.; insol. turpen-	blue crystals..
34		35.34°	29.24 <sup>100</sup> °	soluble alcohol.....	¶
35		43.52°	35.75 <sup>100</sup> °	soluble alcohol.....	monoclinic....
36		decomp.			prismatic.....
37		v. soluble		v. soluble alcohol.....	
38		soluble		s. soluble alcohol.....	needles.....
39		0.27 <sup>20</sup> °	2.5 <sup>100</sup> °		
40	1100°	insoluble	s. decomp.	sol. a., NH <sub>4</sub> salts....	

‡ Loses 2H<sub>2</sub>O at 100°, 3H<sub>2</sub>O at 150°.§ Loses H<sub>2</sub>O at 100°.

¶ Monoclinic, regular, rhombic or hexagonal.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Magnesium acetate...	Mg(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> ·4H <sub>2</sub> O	214.47	1.45	.....
2	aluminate.....	MgO·Al <sub>2</sub> O <sub>3</sub> .....	142.56	3.57 <sup>15°</sup>	.....
3	ammonium arsenate.	MgNH <sub>4</sub> AsO <sub>4</sub> ·6H <sub>2</sub> O	289.53	.....	decomp.
4	“ chloride.	MgCl <sub>2</sub> ·NH <sub>4</sub> Cl·6H <sub>2</sub> O	256.88	1.456	.....
5	“ chromate	MgCrO <sub>4</sub> ·(NH <sub>4</sub> ) <sub>2</sub> CrO <sub>4</sub> ·6H <sub>2</sub> O	400.80	1.8293 <sup>17°</sup>	.....
6	“ phosphate	MgNH <sub>4</sub> PO <sub>4</sub> ·6H <sub>2</sub> O	245.53	1.71 <sup>15°</sup>	decomp.
7	“ sulphate.	MgSO <sub>4</sub> ·(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> ·6H <sub>2</sub> O	360.72	1.723 <sup>17</sup>	.....
8	arsenate.....	2MgHASO <sub>4</sub> ·13H <sub>2</sub> O	562.94	3.155 <sup>15°</sup>	.....
9	arsenite.....	Mg <sub>3</sub> (AsO <sub>3</sub> ) <sub>2</sub> .....	319.08	.....	.....
10	benzoate.....	Mg(C <sub>6</sub> H <sub>5</sub> O <sub>2</sub> ) <sub>2</sub> ·3H <sub>2</sub> O	320.49	.....	decomp.
11	borate.....	Mg(BO <sub>2</sub> ) <sub>2</sub> ·8H <sub>2</sub> O	254.49	2.27	.....
12	bromate.....	Mg(BrO <sub>3</sub> ) <sub>2</sub> ·6H <sub>2</sub> O	388.38	2.29	6H <sub>2</sub> O, 200°
13	bromide.....	MgBr <sub>2</sub> .....	184.28	.....	695°
14	“.....	MgBr <sub>2</sub> ·6H <sub>2</sub> O	292.38	.....	decomp.
15	carbonate.....	MgCO <sub>3</sub> .....	84.36	3.04	dec. 350°
16	“.....	MgCO <sub>3</sub> ·3H <sub>2</sub> O	138.41	1.808 <sup>11</sup>	.....
17	“ basic.....	4MgCO <sub>3</sub> ·Mg(OH) <sub>2</sub> ·5H <sub>2</sub> O	485.90	2.18	.....
18	“ “.....	3MgCO <sub>3</sub> ·Mg(OH) <sub>2</sub> ·3H <sub>2</sub> O	365.50	2.18	.....
19	chlorate.....	Mg(ClO <sub>3</sub> ) <sub>2</sub> ·6H <sub>2</sub> O	299.36	.....	40°
20	chloride.....	MgCl <sub>2</sub> .....	95.26	2.177	708°
21	“.....	MgCl <sub>2</sub> ·6H <sub>2</sub> O	203.36	1.569 <sup>17°</sup>	2H <sub>2</sub> O, 100°
22	chromate.....	MgCrO <sub>4</sub> ·7H <sub>2</sub> O	266.57	1.761	.....
23	ferrocyanide.....	Mg <sub>2</sub> Fe(CN) <sub>6</sub> ·12H <sub>2</sub> O	477.05	.....	.....
24	fluoride.....	MgF <sub>2</sub> .....	62.32	2.472	908°
25	formate.....	Mg(CHO <sub>2</sub> ) <sub>2</sub> ·2H <sub>2</sub> O	150.41	.....	.....
26	hydroxide.....	Mg(OH) <sub>2</sub> .....	58.38	2.36 <sup>15°</sup>	decomp.
27	iodate.....	Mg(IO <sub>3</sub> ) <sub>2</sub> ·4H <sub>2</sub> O	446.36	3.28	4H <sub>2</sub> O, 210°
28	iodide.....	MgI <sub>2</sub> .....	278.30	.....	decomp.
29	nitrate.....	Mg(NO <sub>3</sub> ) <sub>2</sub> ·6H <sub>2</sub> O	256.6	1.464	90°
30	nitride.....	Mg <sub>3</sub> N <sub>2</sub> .....	101.16	.....	decomp.
31	oxalate.....	MgC <sub>2</sub> O <sub>4</sub> ·2H <sub>2</sub> O	148.39	.....	decomp.
32	oxide.....	MgO.....	40.36	3.22–3.654	infusible
33	permanganate.....	Mg(MnO <sub>4</sub> ) <sub>2</sub> ·6H <sub>2</sub> O	370.46	.....	decomp.
34	phosphate.....	Mg <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> ·4H <sub>2</sub> O	335.14	1.640 <sup>15°</sup> (22H <sub>2</sub> O)	.....

\* Loses 5H<sub>2</sub>O at 330°.



Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	deliques.	v. soluble	v. soluble	v. soluble alcohol.	monoclinic.
2					
3	0.014	soluble		0.003 Mg. mix., insol. al.	tetragonal.
4	16.7				
5	v. soluble	v. soluble			yellow monocl.
6	0.01322			soluble acids; insol. al.	tetragonal.
7	13.49°	67.8775°			prisms
8	insoluble	0.15		sol. HNO <sub>3</sub> ; insol. NH <sub>4</sub> Cl	
9	insoluble			insol. NH <sub>4</sub> aq.; sol. NH <sub>4</sub> Cl	
10	4.525°	soluble			
11	insoluble	insoluble		soluble acids.	
12	decomp. 71.57°	v. soluble			regular.
13	v. soluble				
14	v. soluble			soluble alcohol.	
15	0.0106			sol. acids, 2.21 CO <sub>2</sub> aq.	hex. rhomboh. or rhombic
16	0.151819°	decomp.		sol. acids, 1.40 CO <sub>2</sub> aq.	hexagonal.
17	0.04	0.011		soluble acids, NH <sub>4</sub> salts	
18	0.04	0.011		soluble acids, NH <sub>4</sub> salts	monoclinic.
19	deliques	v. soluble		soluble alcohol.	
20	red heat 52.2°	65.8780°		50 alcohol.	crystalline.
21	decomp. 167	367		50 alcohol.	monoclinic.
22	v. soluble	v. soluble			yellow
23	33				pale yel. cryst.
24	0.007618°	insoluble		sol. HNO <sub>3</sub> ; insol. al.	tetragonal.
25	7.7			insol. alcohol, ether.	rhombic.
26	0.0009			soluble NH <sub>4</sub> salts.	rhombohedral.
27	decomp. 1015°	33100°			monoclinic.
28	deliques.	v. soluble		soluble alcohol, ether.	[triclinic
29	* 200			soluble alcohol.	monoclinic or
30	insoluble			soluble acids; insol. al.	†
31	0.0716°	0.08100°		sol. alk. oxalates, a.	
32	0.00062			sol. acids. NH <sub>4</sub> salts	reg. or hexag.
33	v. soluble	decomp.		sol. glac. H.C <sub>2</sub> H <sub>3</sub> O <sub>2</sub>	purple needles
				methyl alcohol.	
34	0.0205			sol. acids; insol. NH <sub>4</sub> salts, H.C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ,	monoclinic.

† Greenish yellow crystals.

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
<b>Magnesium</b>					
1	phosphate acid. . . .	MgHPO <sub>4</sub> .3H <sub>2</sub> O . . . .	174.42	2.123 <sup>15°</sup>	
2	“ “ . . .	Mg <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> .8H <sub>2</sub> O . . . .	407.21	2.195 <sup>15°</sup>	
3	“ “ . . .	MgHPO <sub>4</sub> .7H <sub>2</sub> O . . . .	246.48		
4	“ pyro- . . .	Mg <sub>2</sub> P <sub>2</sub> O <sub>7</sub> . . . .	222.72	2.40	
5	phosphite . . . . .	MgHPO <sub>3</sub> .3H <sub>2</sub> O . . . .	158.42		
6	potassium chloride	MgCl <sub>2</sub> .KCl.6H <sub>2</sub> O . . . .	277.96		
7	“ sulphate . . . .	MgSO <sub>4</sub> .K <sub>2</sub> SO <sub>4</sub> .6H <sub>2</sub> O . . . .	402.88	2.0277 <sup>7</sup>	
8	selenate . . . . .	MgSeO <sub>4</sub> .6H <sub>2</sub> O . . . .	275.66	1.928	
9	silicide . . . . .	Mg <sub>2</sub> Si <sub>3</sub> . . . .	207.00		
10	sodium chloride . .	MgCl <sub>2</sub> .NaCl.H <sub>2</sub> O . . . .	171.78		
11	sulphate . . . . .	MgSO <sub>4</sub> . . . .	120.42	2.65	
12	“ . . . . .	MgSO <sub>4</sub> .7H <sub>2</sub> O . . . .	246.53	1.678 <sup>16°</sup>	
13	sulphide . . . . .	MgS . . . . .	56.42	2.82 <sup>15°</sup>	decomp.
14	sulphite . . . . .	MgSO <sub>3</sub> .6H <sub>2</sub> O . . . .	212.52		6H <sub>2</sub> O, 200°
15	tartrate . . . . .	MgC <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .4H <sub>2</sub> O . . . .	244.46		decomp.
16	thiosulphate . . . .	MgS <sub>2</sub> O <sub>3</sub> .6H <sub>2</sub> O . . . .	248.58	1.818 <sup>24°</sup>	3H <sub>2</sub> O, 170°
17	<b>Manganese</b> . . . . .	Mn . . . .	55.0	7.42	1245°
18	acetate . . . . .	Mn(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> .4H <sub>2</sub> O . . . .	245.11	1.6	
19	ammon. phosphate .	NH <sub>4</sub> MnPO <sub>4</sub> .H <sub>2</sub> O . . . .	186.09		
20	“ sulphate . . . .	MnSO <sub>4</sub> .(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> . 6H <sub>2</sub> O . . . .	391.36	1.837 <sup>7</sup>	
21	arsenite . . . . .	Mn <sub>2</sub> H <sub>6</sub> (AsO <sub>3</sub> ) <sub>4</sub> .2H <sub>2</sub> O . . . .	699.08		
22	benzoate . . . . .	Mn(C <sub>7</sub> H <sub>5</sub> O <sub>2</sub> ) <sub>2</sub> .3H <sub>2</sub> O . . . .	517.13		
23	boride . . . . .	MnB <sub>2</sub> . . . .	77.00	6.04 <sup>19°</sup>	fusible
24	bromide . . . . .	MnBr <sub>2</sub> . . . .	214.92		decomp.
25	“ . . . . .	MnBr <sub>2</sub> .4H <sub>2</sub> O . . . .	286.98		
26	carbide . . . . .	Mn <sub>2</sub> C . . . .	177.00	6.89 <sup>17°</sup>	
27	carbonate . . . . .	MnCO <sub>3</sub> . . . .	115.00	3.125–3.66	decomp.
28	chloride . . . . .	MnCl <sub>2</sub> . . . .	125.9	2.478	red heat
29	“ . . . . .	MnCl <sub>2</sub> .4H <sub>2</sub> O . . . .	197.96	1.913	87.5°
30	“ per- . . . . .	MnCl <sub>4</sub> . . . .	196.8		
31	ferrocyanide . . . .	Mn <sub>2</sub> Fe(CN) <sub>6</sub> .7H <sub>2</sub> O . . . .	448.25		
32	fluoride di- . . . .	MnF <sub>2</sub> . . . .	93.00	3.98	856°
33	“ sesqui- . . . .	Mn <sub>2</sub> F <sub>6</sub> .6H <sub>2</sub> O . . . .	332.10	3.54	decomp.
34	fluosilicate . . . . .	MnSiF <sub>6</sub> .6H <sub>2</sub> O . . . .	305.50	1.9038 <sup>17.5°</sup>	decomp.
35	formate . . . . .	Mn(CHO <sub>2</sub> ) <sub>2</sub> .2H <sub>2</sub> O . . . .	181.05	1.953	decomp.
36	hydroxide -ous....	Mn(OH) <sub>2</sub> . . . .	89.02	3.258	decomp.
37	“ -ic . . . . .	Mn <sub>2</sub> O <sub>3</sub> .H <sub>2</sub> O . . . .	176.02	4.335	decomp.
38	hypophosphite . . .	Mn(H <sub>2</sub> PO <sub>2</sub> ) <sub>2</sub> .H <sub>2</sub> O . . . .	203.05		

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1					plates.
2					monocl. plates
3		0.3	0.2	soluble acids; insol. al.	hexagonal.
4		insoluble	insoluble	soluble acids; insol. al.	
5		0.25		soluble acids.	
6					hexagonal.
7		19.26°	81.70 <sup>75°</sup>		
8		v. soluble			monoclinic.
9		insoluble	decomp.	dec. by acids, NH <sub>4</sub> Cl.	
10		soluble			
11		26.90°	73.81 <sup>100°</sup>	soluble alcohol.	
12		76.90°	671.21 <sup>100°</sup>	soluble alcohol.	tetragonal or monoclinic.
13		decomp.		decomposed by acids.	red brown cub.
14	decomp.	1.25	0.83	insoluble alcohol.	
15		0.81°			
16	decomp.	v. soluble	v. soluble	soluble alcohol.	prismatic.
17		decomp.	decomp.	soluble dil., acids.	reddish. [clinic
18		3		soluble alcohol.	pale red mono-
19		0.0031	0.05	insol. alcohol, NH <sub>4</sub> salts.	
20		deliques.	v. soluble		
21		insoluble		soluble acids.	rose red.
22		6.55 <sup>15°</sup>			flat prisms.
23		insoluble	decomp.	soluble acids.	gray. vio. crys.
24		deliques.			rose red.
25		deliques.			red monoclinic
26		decomp.	decomp.	soluble acids.	tetrahedral.
27		0.013	insoluble	0.028, CO <sub>2</sub> aq., sol. dil. a.	rose col. rhom-
28		62.16 <sup>100°</sup>	123.81 <sup>106.3°</sup>	sol. alcohol; insol. ether	[bohedral
29	106°	151 <sup>8°</sup>	656 <sup>106.3°</sup>	sol. alcohol; insol. ether	rose col. mono.
30		soluble	soluble	soluble ether.	green.
31		insoluble		sol. HCl; insol. NH <sub>4</sub> salts	
32		insoluble	decomp.	insol. al., ether; sol. a.	red prisms.
33		v. soluble	decomp.	soluble acids.	crystalline.
34		140	v. soluble	soluble alcohol.	hexagonal.
35		soluble	soluble		monoclinic.
36		insoluble	insoluble	sol. a., NH <sub>4</sub> salts; insol. alk.	hexagonal.
37		insoluble	insoluble	sol. hot conc., H <sub>2</sub> SO <sub>4</sub>	tetragonal.
38					rose red cryst.

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Manganese iodide....	MnI <sub>2</sub> .4H <sub>2</sub> O.....	381.00	.....	decomp.
2	lactate.....	Mn(C <sub>3</sub> H <sub>5</sub> O <sub>3</sub> ) <sub>2</sub> .3H <sub>2</sub> O.	287.13	.....	decomp.
3	nitrate.....	Mn(NO <sub>3</sub> ) <sub>2</sub> .6H <sub>2</sub> O...	287.18	1.82	25.8°
3	oxalate.....	MnC <sub>2</sub> O <sub>4</sub> .2½H <sub>2</sub> O...	188.04	2.453 <sup>20°</sup>	dec. 150°
5	oxide -ous.....	MnO.....	71.00	5.09-5.18	white heat
6	" -ic.....	Mn <sub>2</sub> O <sub>3</sub> .....	158.00	4.325-4.82	.....
7	" di-.....	MnO <sub>2</sub> .....	87.00	5.026	decomp.
8	" tri-.....	MnO <sub>3</sub> .....	103.00	.....	decomp.
9	" hept-.....	Mn <sub>2</sub> O <sub>7</sub> .....	222.00	> 1.84	< -20°
10	phosphate -ous.....	Mn <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> .7H <sub>2</sub> O...	481.11	.....	.....
11	" " acid.....	MnHPO <sub>4</sub> .3H <sub>2</sub> O....	205.06	.....	.....
12	phosphite.....	MnHPO <sub>3</sub> .H <sub>2</sub> O.....	153.03	.....	H <sub>2</sub> O, 200°
13	pyrophosphate.....	Mn <sub>2</sub> P <sub>2</sub> O <sub>7</sub> .....	284.00	3.5847 <sup>20°</sup>	.....
14	" ".....	Mn <sub>2</sub> P <sub>2</sub> O <sub>7</sub> .3H <sub>2</sub> O...	338.05	.....	.....
15	silicide.....	MnSi.....	83.40	5.90 <sup>15°</sup>	.....
16	" di-.....	MnSi <sub>2</sub> .....	111.80	5.24 <sup>13°</sup>	.....
17	" -ous.....	Mn <sub>2</sub> Si.....	138.40	6.20 <sup>15°</sup>	.....
18	sulphate -ic.....	Mn <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	398.18	.....	decomp.
19	" -ous.....	MnSO <sub>4</sub> .....	151.06	2.954	decomp.
20	" ".....	MnSO <sub>4</sub> .H <sub>2</sub> O.....	169.08	2.845 <sup>15°</sup>	.....
21	" ".....	MnSO <sub>4</sub> .2H <sub>2</sub> O.....	187.09	2.526 <sup>15°</sup>	.....
22	" ".....	MnSO <sub>4</sub> .3H <sub>2</sub> O.....	205.11	2.356 <sup>15°</sup>	.....
23	" ".....	MnSO <sub>4</sub> .4H <sub>2</sub> O *	223.12	2.107	.....
24	" ".....	MnSO <sub>4</sub> .5H <sub>2</sub> O.....	241.14	2.09	54°
25	" ".....	MnSO <sub>4</sub> .6H <sub>2</sub> O.....	259.16	.....	.....
26	" ".....	MnSO <sub>4</sub> .7H <sub>2</sub> O.....	277.17	2.092	.....
27	sulphide -ic.....	MnS <sub>2</sub> .....	119.12	3.463	decomp.
28	" -ous.....	MnS.....	87.06	3.634 <sup>7°</sup>	decomp.
29	" ".....	MnS.....	87.06	3.554 <sup>7°</sup>	decomp.
30	" ".....	3MnS.H <sub>2</sub> O.....	279.20	.....	decomp.
31	sulphocyanate.....	Mn(CNS) <sub>2</sub> .3H <sub>2</sub> O...	225.25	.....	†
32	Manganocyanhydric acid	H <sub>4</sub> Mn(CN) <sub>6</sub> .....	215.27	.....	decomp.
33	Manganomanganic oxide	Mn <sub>3</sub> O <sub>4</sub> .....	229.00	4.33-4.9	infusible
34	Mercuriammonium di- ammonium bromide.	NHg <sub>2</sub> Br.NH <sub>4</sub> Br...	592.03	.....	decomp.
35	" chloride.	.....	.....	.....	.....

\* The ordinary salt.

† Loses 3H<sub>2</sub>O at 160°-170°.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	deliques.	v. soluble	.....	rose red mono.
2	.....	soluble	v. soluble	.....	amethyst mon.
3	129.4°	v. soluble	v. soluble	v. soluble alcohol	.....
4	.....	0.05	0.08 <sup>100°</sup>	sol. dil. acids	.....
5	.....	insoluble	insoluble	soluble acids, $\text{NH}_4\text{Cl}$	grass green reg.
6	.....	insoluble	insoluble	soluble acids	black regular
7	.....	insoluble	insoluble	soluble $\text{HCl}$	†
8	.....	soluble	decomp.	sol. conc., $\text{H}_2\text{SO}_4$	reddish
9	explodes	v. soluble	decomp.	soluble conc. $\text{H}_2\text{SO}_4$	dark red oil
10	.....	s. soluble	.....	soluble acids; insol. al.	amorphous
11	.....	s. soluble	decomp.	soluble acids; insol. al.	crystalline
12	.....	s. soluble	.....	sol. $\text{MnCl}_2, \text{MnSO}_4$	reddish
13	.....	insoluble	.....	soluble acids	.....
14	.....	insoluble	.....	soluble $\text{Mn}_2\text{P}_2\text{O}_7$	.....
15	.....	insoluble	insoluble	insoluble acids	tetrahedral
16	.....	insoluble	insoluble	insol. $\text{HNO}_3, \text{H}_2\text{SO}_4$ sol. $\text{HF}$ , alk.	gray octahedra
17	.....	insoluble	insoluble	sol. $\text{HCl}$ , $\text{NaOH}$ ; insol. $\text{HNO}_3$	quadr. prisms.
18	160°	deliques.	decomp.	sol. conc., $\text{HCl}$ , dil. $\text{H}_2\text{SO}_4$	green crystals
19	.....	56.58.3°	67.75°	sol. al.; insol. ether	.....
20	†57° & 117°	98.47.48°	79.77.100°	.....	.....
21	†40° & 57°	85.27.35°	106.85.5°	.....	.....
22	†30° & 40°	74.22.5°	99.31.57°	.....	.....
23	†18° & 30°	81.79.0°	111.25.4°	insoluble alcohol	monoclinic or
24	†8° & 18°	92.62.0°	142.15.4°	.....	[rhombic
25	†-5° & +8°	110.1.0°	134.53.8°	.....	.....
26	†-10° & -5	98.35.0°	118.15°	.....	pale red mono.
27	.....	insoluble	insoluble	decomp. by $\text{HCl}$	or rhombic..
28	.....	insoluble	insoluble	insol. $(\text{NH}_4)_2\text{S}$ ; sol. dil. a.	black regular..
29	.....	insoluble	insoluble	insol. $(\text{NH}_4)_2\text{S}$ ; sol. dil. a.	green cryst...
30	.....	insoluble	insoluble	insol. $(\text{NH}_4)_2\text{S}$ ; sol. dil. a.	red } pink....
31	.....	deliques.	v. soluble	v. soluble alcohol	gray }
32	.....	insoluble	.....	insol. ether; v. sol. al.	.....
33	.....	insoluble	insoluble	soluble hot $\text{HCl}$	brown tetrag..
34	.....	decomp.	decomp.	soluble $\text{HCl}$ , $\text{KI}$	yellow
35	.....	.....	.....	.....	.....

† Stable between the temperatures given. ‡ Black tetragonal or rhombic.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
<b>Mercuri ammonium</b>					
1	ammonium chloride				
2	infusible white ppt.	$\text{NH}_4\text{Cl} \cdot \text{NH}_4\text{Cl} \dots$	503.01	5.700	volatile
3	fusible white ppt.	$\text{NH}_4\text{Cl} \cdot 3\text{NH}_4\text{Cl} \dots$	610.06		300°
4	ammonium iodide	$\text{NH}_4\text{I} \cdot 3\text{NH}_4\text{I} \dots$	764.04		
5	" nitrate	$\text{NH}_4\text{NO}_3 \cdot \text{NH}_4\text{NO}_3 \cdot \text{H}_2\text{O}$	374.21		
6	" sulphate	$(\text{NH}_4)_2\text{SO}_4 \cdot 3(\text{NH}_4)_2\text{SO}_4 \cdot 4\text{H}_2\text{O}$	1200.7		
7	bromide	$\text{NH}_4\text{Br}$	494.00		decomp.
8	chloride	$\text{NH}_4\text{Cl}$	449.49		dec. 300°
9	hydroxide	$\text{NH}_4\text{OH}$	231.05		explodes
10	iodide	$\text{NH}_4\text{I}$	341.01		
11	mercuric chloride	$2\text{NH}_4\text{Cl} \cdot \text{HgCl}_2 \dots$	1169.9		dec. 360°
12	nitrate	$\text{NH}_4\text{NO}_3$	276.08		
13	sulphate	$(\text{NH}_4)_2\text{SO}_4 \cdot 2\text{H}_2\text{O}$	960.17		
<b>Mercuri diammonium</b>					
14	bromide	$\text{NH}_4\text{HgBr} \cdot \text{NH}_4\text{Br}$	394.05		dec. 180°
15	cupric iodide	$(\text{NH}_3)_4\text{HgI}_2 \cdot \text{CuI}_2$	839.74		
16	mercuric chloride	$(\text{NH}_3)_2\text{HgCl}_2 \cdot \text{HgCl}_2$	575.93		
17	sulphate	$(\text{NH}_3)_2\text{HgSO}_4 \cdot \text{H}_2\text{O}$	348.20		$\text{H}_2\text{O}$ , 115°
<b>Mercurio ammonium</b>					
18	chloride	$\text{NH}_3\text{HgCl}$	252.51		decomp.
19	diammonium acetate	$(\text{NH}_3)_2\text{Hg}(\text{C}_2\text{H}_3\text{O}_2)_2 \cdot \text{H}_2\text{O}$	370.19		decomp.
<b>Mercurioxy</b>					
20	ammonium chloride	$\text{NH}_2\text{Hg}_2\text{OCl}$	467.51		dec. 200°
21	" hydrox.	$\text{NH}_2\text{Hg}_2\text{OOH}$	449.06		dec. 130°
22	" iodide	$\text{NH}_2\text{Hg}_2\text{OI}$	559.03		> 128°
23	" nitrate	$\text{NH}_2\text{Hg}_2\text{ONO}_3$	494.10		
24	" sulphate	$(\text{NH}_2\text{Hg}_2\text{O})_2\text{SO}_4$	960.17		decomp.
25	Mercuric acetate	$\text{Hg}(\text{C}_2\text{H}_3\text{O}_2)_2$	318.05	3.2544 <sup>22°</sup>	
26	arsenate	$\text{Hg}_3(\text{AsO}_4)_2$	878.00		
27	bromate	$\text{Hg}(\text{BrO}_3)_2 \cdot 2\text{H}_2\text{O}$	491.95		*
28	bromide	$\text{HgBr}_2$	359.92	5.74	244°
29	carbonate basic	$2\text{HgO} \cdot \text{HgCO}_3$	692.00		
30	chlorate	$\text{Hg}(\text{ClO}_3)_2$	366.90	4.998	decomp.
31	chloride	$\text{HgCl}_2$	270.90	5.32–5.46	287°
32	chromate	$\text{HgCrO}_4$	316.10		decomp.
33	cyanide	$\text{Hg}(\text{CN})_2$	252.08	4.018	decomp.
34	fluoride	$\text{HgF}_2$	238.00		

\* Decomposes at 130°–140°.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	0.14	decomp.	insol. alcohol; sol. acids.	.....
2	.....	insoluble	decomp.	soluble acids, KI.....	red crystals....
3	.....	decomp.	.....	soluble alcohol, ether ..	.....
4	.....	insoluble	.....	sol. $\text{HNO}_3$ ; insol. KOH.	.....
5	.....	decomp.	.....	sol. dil. a., $\text{NH}_4$ salts...	.....
6	.....	insoluble	.....	soluble HCl, KI.....	yellow.....
7	.....	insoluble	insoluble	soluble acids, KI.....	yellow.....
8	.....	decomp.	.....	sol. hot, HCl, $\text{HNO}_3$ ...	brown.....
9	.....	insoluble	.....	sol. HCl; dec. by KI.....	.....
10	.....	insoluble	insoluble	soluble hot HCl.....	red crystals....
11	.....	insoluble	.....	soluble KI.....	.....
12	.....	insoluble	.....	soluble HCl, KI.....	.....
13	.....	insoluble	.....	soluble HCl, $\text{H}_2\text{SO}_4$ ...	rhombohedral..
14	.....	decomp.	.....	sol. alcohol+ $\text{H.C}_2\text{H}_3\text{O}_2$ ...	.....
15	.....	insoluble	decomp.	.....	.....
16	decomp.	decomp.	decomp.	sol. acids, $\text{NH}_4$ salts....	orthorhombic..
17	.....	insoluble	.....	.....	black.....
18	.....	v. soluble	.....	s. soluble alcohol.....	rectangular plates.....
19	.....	s. soluble	.....	soluble HCl, $\text{HNO}_3$ ...	yellow..[rhomb.
20	.....	0.007 <sup>17°</sup>	0.06 <sup>80°</sup>	.....	yellow brown
21	explodes	.....	.....	soluble HCl, KI.....	brown.....
22	.....	insoluble	.....	.....	.....
23	.....	s. soluble	.....	soluble HCl, $\text{HNO}_3$ ...	white and yel..
24	.....	25 <sup>10°</sup>	100 <sup>100°</sup>	soluble alcohol.....	micaceous scales
25	.....	s. soluble	.....	sol. HCl, $\text{HNO}_3$ .....	.....
26	.....	0.17°	1.6	sol. $\text{HNO}_3$ ,HCl,Hg( $\text{NO}_3$ ) <sub>2</sub>	crystalline.....
27	†	1.06 <sup>9°</sup>	20–25 <sup>100°</sup>	soluble alcohol, ether ..	rhombic.....
28	.....	insoluble	.....	.....	brown red.....
29	.....	25°	.....	.....	needles.....
30	303°–307°	5.73°	53.96 <sup>100°</sup>	43.5 al., 33 ether.....	rhombic.....
31	.....	s. soluble	decomp.	decomposed by acids...	dark red trim...
32	.....	12.5 <sup>15°</sup>	53	5 alcohol.....	tetragonal.....
33	.....	decomp.	.....	.....	crystalline.....

† Sublimes at 319°–325°.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H = 1 (D).	Melting Point, °C.
1	Mercuric fluosilicate.	$\text{HgSiF}_6 \cdot \text{HgO} \cdot 3\text{H}_2\text{O}$	612.45	.....	.....
2	fulminate.....	$\text{HgC}_2\text{N}_2\text{O}_2$	284.08	4.42	explodes
3	hydrate.....	$\text{Hg}(\text{OH})_2$	234.02	.....	$\text{H}_2\text{O}$ , 175°
4	iodate.....	$\text{Hg}(\text{IO}_3)_2$	549.94	.....	.....
5	iodide red.....	$\text{HgI}_2$	453.94	6.2-6.32	241°-257°
6	“ yellow.....	$\text{HgI}_2$	453.94	5.91-6.06	241°
7	iodo bromide.....	$\text{HgIBr}$	406.93	.....	229°
8	“ chloride.....	$\text{HgICl}$	362.42	.....	153°
9	nitrate.....	$2\text{Hg}(\text{NO}_3)_2 \cdot \text{H}_2\text{O}$	542.10	.....	decomp.
10	nitride.....	$\text{Hg}_3\text{N}_2$	628.08	.....	explodes
11	oxalate.....	$\text{HgC}_2\text{O}_4$	288.00	.....	decomp.
12	oxide.....	$\text{HgO}$	216.00	11.00-11.29	decomp.
13	oxybromide.....	$\text{HgBr}_2 \cdot 3\text{HgO}$	1007.9	.....	.....
14	oxychloride.....	$\text{HgCl}_2 \cdot 3\text{HgO}$	918.90	8.670	.....
15	oxycyanide.....	$\text{Hg}(\text{CN})_2 \cdot \text{HgO}$	468.08	4.137 <sup>19°</sup>	explodes
16	oxyfluoride.....	$\text{HgF}_2 \cdot \text{HgO} \cdot \text{H}_2\text{O}$	472.02	.....	dec. 100°
17	oxyiodide.....	$\text{HgI}_2 \cdot 3\text{HgO}$	1101.9	.....	.....
18	phosphate.....	$\text{Hg}_3(\text{PO}_4)_2$	790.00	.....	.....
19	potassium iodide.....	$2\text{HgI}_2 \cdot 2\text{KI} \cdot 3\text{H}_2\text{O}$	1294.2	4.289 <sup>23.5°</sup>	.....
20	selenide.....	$\text{HgSe}$	279.20	7.1-8.877	sublimes
21	sulphate.....	$\text{HgSO}_4$	296.06	6.466	dec. red ht.
22	“ basic.....	$\text{HgSO}_4 \cdot 2\text{HgO}$	728.06	6.44	.....
23	sulphide.....	$\text{HgS}$	232.06	7.55-7.70	.....
24	“.....	$\text{HgS}$	232.06	8.06-8.12	sublimes
25	sulphocyanate.....	$\text{Hg}(\text{CNS})_2$	316.20	.....	decomp.
26	Mercurous acetate.....	$\text{Hg}_2(\text{C}_2\text{H}_3\text{O}_2)_2$	518.05	.....	decomp.
27	arsenate acid.....	$\text{Hg}_2\text{HAsO}_4$	540.01	.....	decomp.
28	“.....	$\text{Hg}_3\text{AsO}_4$	739.00	.....	decomp.
29	bromate.....	$\text{Hg}_2(\text{BrO}_3)_2$	655.92	.....	decomp...
30	bromide.....	$\text{HgBr}_2$	279.96	7.307	.....
31	carbonate.....	$\text{Hg}_2\text{CO}_3$	460.00	.....	dec. 130°
32	chlorate.....	$\text{HgClO}_3$	283.45	6.409	decomp.
33	chloride.....	$\text{HgCl}_2$	235.45	6.993-7.18	sublimes
34	“.....	$\text{HgCl}_2$	235.45	6.482	at 400°-500°
35	chromate.....	$\text{Hg}_2\text{CrO}_4$	516.10	.....	decomp.
36	fluoride.....	$\text{HgF}_2$	219.00	.....	dec. 200°



Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	decomp.	.....	soluble acids.....	yellow needles
2	.....	s. soluble	soluble	sol. alcohol, $\text{NH}_3$ .....	octahedra....
3	.....	insoluble	.....	soluble acids... [ $\text{HNO}_3$ .....	.....
4	.....	insoluble	.....	sol. $\text{NH}_4\text{Cl}$ , $\text{HCl}$ ; insol.	.....
5	349°	0.004 <sup>17.5°</sup>	.....	{ 1.186 <sup>18°</sup> alcohol; sol.	red tetragonal.
6	349°	insoluble	.....	{ $\text{Na}_2\text{S}_2\text{O}_8$ , alk. salts	yellow rhomb.
7	360°	.....	.....	soluble ether.....	yellow rhomb.
8	315°	insoluble	s. soluble	soluble alcohol.....	yel. rhomb. or red tetrag.
9	.....	v. soluble	decomp.	sol. $\text{HNO}_3$ , insol. alcohol	crystalline....
10	.....	decomp.	.....	decomp. by acids.....	brown powder
11	.....	insoluble	insoluble	sol. $\text{HCl}$ ; s. sol. $\text{HNO}_3$ ..	{ yellow tetrag.
12	.....	0.00515 <sup>25°</sup>	0.0395 <sup>100°</sup>	insoluble alcohol; sol. a.	{ plates or red monocl. prisms
13	.....	insoluble	s. soluble	v. soluble alcohol.....	yellow crystals
14	.....	insoluble	decomp.	.....	yellow prisms
15	.....	s. soluble	.....	.....	needles.....
16	.....	decomp.	.....	soluble $\text{HNO}_3$ .....	yellow crystals
17	.....	decomp.	.....	soluble $\text{HI}$ .....	yellow brown
18	.....	insoluble	s. soluble	sol. a., $\text{NH}_4\text{Cl}$ ; insol. al.	.....
19	.....	decomp.	.....	soluble alcohol, ether ..	.....
20	.....	insoluble	.....	soluble aqua regia .....	gray laminal..
21	.....	decomp.	.....	soluble a., insol. al.....	.....
22	.....	0.002	.....	soluble a., insol. al.....	yellow.....
23	.....	0.0025	.....	sol. $\text{Na}_2\text{S}$ ; insol. $\text{HNO}_3$ ..	black amorph.
24	.....	insoluble	insoluble	soluble aqua regia .....	rhomboh. or red hexag.
25	.....	s. soluble	soluble	sol. alcohol, $\text{NH}_4$ salts..	..... [scales
26	.....	0.75 <sup>13°</sup>	.....	sol. $\text{H}_2\text{SO}_4$ , $\text{HNO}_3$ .....	micaceous
27	.....	insoluble	.....	soluble $\text{HNO}_3$ .....	yellow to red .
28	.....	insoluble	.....	soluble $\text{HNO}_3$ ; insoluble $\text{H.C}_2\text{H}_3\text{O}_2$	dark red .....
29	.....	decomp.	.....	sol. $\text{HNO}_3$ , $\text{HCl}$ , $\text{HgNO}_3$	crystalline....
30	340°–405°	insoluble	insoluble	sol. acids; insol. al.....	yellow tetrag..
31	.....	insoluble	decomp.	soluble $\text{NH}_4\text{Cl}$ .....	black or yellow
32	.....	soluble	decomp.	sol. al., $\text{H.C}_2\text{H}_3\text{O}_2$ .....	columnar crys.
33	.....	0.00031	0.01	{ insol. al., ether; sol. $\text{Hg}(\text{NO}_3)_2$ , aq. r.	rhombic.....
34	.....	0.00031	0.01	{ s. sol. hot., $\text{HNO}_3$ , $\text{HCl}$	tetragonal....
35	.....	s. soluble	soluble	soluble $\text{HNO}_3$ , $\text{KCN}$ ...	red crystals...
36	.....	decomp.	.....	.....	yellow monocl.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	<b>Mercurous fluosilicate</b>	Hg <sub>2</sub> SiF <sub>6</sub> .2H <sub>2</sub> O.....	578.43	.....	.....
2	formate.....	HgCHO <sub>2</sub> .....	245.01	.....	decomp.
3	iodate.....	HgIO <sub>3</sub> .....	374.94	.....	decomp.
4	iodide.....	HgI.....	326.97	7.70	290°
5	nitrate.....	HgNO <sub>3</sub> .2H <sub>2</sub> O.....	298.07	4.78	decomp.
6	oxalate.....	Hg <sub>2</sub> C <sub>2</sub> O <sub>4</sub> .....	488.00	.....	.....
7	oxide.....	Hg <sub>2</sub> O.....	416.00	8.95-10.69	decomp.
8	phosphate.....	Hg <sub>3</sub> PO <sub>4</sub> .....	679.00	.....	.....
9	sulphate.....	Hg <sub>2</sub> SO <sub>4</sub> .....	496.06	7.56	melts.....
10	sulphide.....	Hg <sub>2</sub> S.....	432.06	.....	dec. at 0°
11	sulphocyanate.....	HgCNS.....	258.10	.....	decomp.
12	trinitride.....	HgN <sub>3</sub> .....	242.12	.....	explodes
13	<b>Mercury</b> .....	Hg.....	200.0	13.5953†	-38.85°
14	<b>Molybdenum</b> .....	Mo.....	96.0	8.6-9.01	*
15	bromhydroxide.....	Mo <sub>3</sub> Br <sub>4</sub> (OH) <sub>2</sub> .....	641.86	.....	.....
16	bromide di.....	MoBr <sub>2</sub> .....	255.92	.....	.....
17	“ tri.....	MoBr <sub>3</sub> .....	335.88	.....	†
18	“ tetra.....	MoBr <sub>4</sub> .....	415.84	.....	decomp.
19	carbide.....	MoC.....	108.00	8.420°	decomp.
20	chloride di.....	MoCl <sub>2</sub> .....	166.90	.....	decomp.
21	“ tri.....	MoCl <sub>3</sub> .....	202.35	.....	decomp.
22	“ tetra.....	MoCl <sub>4</sub> .....	237.80	.....	.....
23	“ penta.....	MoCl <sub>5</sub> .....	273.25	9.5350°	194°
24	chlorohydroxide.....	Mo <sub>3</sub> Cl <sub>4</sub> (OH) <sub>2</sub> .2H <sub>2</sub> O.....	499.85	.....	.....
25	oxide di.....	MoO <sub>2</sub> .....	128.00	6.4410°	.....
26	“ sesqui.....	Mo <sub>2</sub> O <sub>3</sub> .....	240.00	.....	.....
27	“ tri.....	MoO <sub>3</sub> .....	144.00	4.3921°	759°
28	oxybromide.....	MoO <sub>2</sub> Br <sub>2</sub> .....	287.92	.....	sublimes
29	oxychloride.....	MoOCl <sub>4</sub> .....	253.80	.....	<100°
30	“.....	MoO <sub>2</sub> Cl <sub>2</sub> .....	198.90	.....	sublimes
31	“.....	MoOCl <sub>3</sub> .....	218.35	.....	sublimes
32	“.....	Mo <sub>2</sub> O <sub>3</sub> Cl <sub>3</sub> .....	417.25	.....	sublimes
33	phosphide.....	Mo <sub>3</sub> P <sub>2</sub> .....	350.00	6.17	oxidizes
35	sulphide di.....	MoS <sub>2</sub> .....	160.12	4.8014°	oxidizes
35	“ “.....	MoS <sub>2</sub> (Mineral).....	160.12	4.44-4.80	.....
36	“ tri.....	MoS <sub>3</sub> .....	192.18	.....	loses S

\* Melts above white heat.

† Decomposes at red heat.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1		s. soluble			prismatic cryst.
2		0.417°	decomp.		glistening scales
3		insoluble	insoluble	soluble dil. HCl.	yellowish.
4	310°	0.0417		sol. KI; insol. alcohol.	yellow tetrag.
5		v. soluble	decomp.		monoclinic.
6		insoluble	insoluble	s. sol. HNO <sub>3</sub> .	
7		insoluble	insoluble	sol. glac., HC <sub>2</sub> H <sub>3</sub> O <sub>2</sub> insol. alk.	black.
8		insoluble	decomp.	soluble HNO <sub>3</sub> .	
9	decomp.	0.2	0.33	soluble H <sub>2</sub> SO <sub>4</sub> , HNO <sub>3</sub> .	monoclinic.
10		insoluble		insol. acids, (NH <sub>4</sub> ) <sub>2</sub> S.	black.
11		insoluble		soluble HCl, KCNS.	
12		insoluble			crystalline.
13	357.33°	insoluble	insoluble	sol. HNO <sub>3</sub> , conc. H <sub>2</sub> SO <sub>4</sub> , insol. HCl	silvery octahed.
14		insoluble	insoluble	sol. HNO <sub>3</sub> , conc. H <sub>2</sub> SO <sub>4</sub> aq. r.	gray.
15				soluble KOH.	red powder.
16		insoluble	insoluble	soluble alk., insol. a.	yellow.
17		insoluble	insoluble	insol. a., dec. by alk.	dark green need.
18	volatile	v. soluble			black needles.
19		insoluble	insoluble	sol. HNO <sub>3</sub> , HF, hot conc. H <sub>2</sub> SO <sub>4</sub>	gray prisms.
20		insoluble	insoluble	sol. acids, al., ether.	yellow amorph.
21		insoluble	decomp.	sol. HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , al.	red needles.
22		deliques.	decomp.	sol. HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , al.	brown crystals.
23	268°	deliques.	decomp.	soluble HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , al.	black crystals.
24		insoluble		soluble acids; insol. al.	yellow amorph.
25		insoluble		s. sol., conc. H <sub>2</sub> SO <sub>4</sub> , insol. KOH	red prisms.
26		insoluble		insoluble acids, alkalies	black to yellow.
27	sublimes	0.10718°	1.70570°	soluble acids, NH <sub>3</sub> aq.	rhombic.
28		soluble			yellow crystals.
29	†	soluble	decomp.		green.
30		soluble		soluble alcohol.	yellow to white.
31		deliques.		soluble acids.	green.
32		deliques.	soluble		dk. brown crys.
33		insoluble		soluble hot, HNO <sub>3</sub> .	gray crystals.
34		insoluble		sol. H <sub>2</sub> SO <sub>4</sub> , aqua regia.	black powder.
35		insoluble			
36		s. soluble	soluble	sol. alk., sulphides.	red brown.

† Sublimes below 100°.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	<b>Molybdenum</b>				
2	" tetra-.....	MoS <sub>4</sub> .....	224.24	.....	oxidizes
3	<b>Molybdic Acid</b> .....	H <sub>2</sub> MoO <sub>4</sub> .....	162.02	.....	.....
3	".....	H <sub>2</sub> MoO <sub>4</sub> .H <sub>2</sub> O.....	180.03	3.124 <sup>15°</sup>	H <sub>2</sub> O, 70°
4	<b>Neodymium</b> .....	Nd.....	143.6	6.9563	840°
5	carbide.....	NdC <sub>2</sub> .....	167.6	5.15	decomp.
6	chloride.....	NdCl <sub>3</sub> .6H <sub>2</sub> O.....	358.05	2.282 <sup>16.5</sup> <sub>4</sub>	5H <sub>2</sub> O, 105°
7	oxide.....	Nd <sub>2</sub> O <sub>3</sub> .....	335.2	.....	.....
8	sulphide.....	Nd <sub>2</sub> S <sub>3</sub> .....	383.38	5.179 <sup>11°</sup>	decomp.
9	<b>Neon</b> .....	Ne.....	20.	{ 0.674 A 9.96 D	.....
10	<b>Nickel</b> .....	Ni.....	58.7	8.6-8.93	1484°
11	acetate.....	Ni(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> .....	176.75	1.799	decomp.
12	ammon. chloride.....	NiCl <sub>2</sub> .NH <sub>4</sub> Cl.6H <sub>2</sub> O.....	291.22	.....	.....
13	" sulphate.....	NiSO <sub>4</sub> .(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .6H <sub>2</sub> O.....	395.06	1.929 <sup>12</sup>	.....
14	arsenide.....	NiAs.....	133.70	7.663	.....
15	arsenite.....	Ni <sub>3</sub> H <sub>2</sub> (AsO <sub>3</sub> ) <sub>4</sub> .H <sub>2</sub> O.....	692.16	.....	decomp.
16	boride.....	NiB.....	69.7	7.39 <sup>18°</sup>	.....
17	bromate.....	Ni(BrO <sub>3</sub> ) <sub>2</sub> .6H <sub>2</sub> O.....	422.72	2.575	decomp.
18	bromide.....	NiBr <sub>2</sub> .....	218.62	4.64 <sup>11</sup>	decomp.
19	".....	NiBr <sub>2</sub> .3H <sub>2</sub> O.....	272.67	.....	3H <sub>2</sub> O, 200°
20	" ammonia.....	NiBr <sub>2</sub> .6NH <sub>3</sub> .....	320.94	1.837	.....
21	carbonate.....	NiCO <sub>3</sub> .....	118.70	.....	decomp.
22	" basic.....	2NiCO <sub>3</sub> .3Ni(OH) <sub>2</sub> .4H <sub>2</sub> O.....	587.61	.....	decomp.
23	carbonyl.....	Ni(CO) <sub>4</sub> .....	170.70	1.3185 <sup>17°</sup>	-25°
24	chloride.....	NiCl <sub>2</sub> .....	129.60	2.56	sublimes
25	chloride.....	NiCl <sub>2</sub> .6H <sub>2</sub> O.....	237.70	.....	.....
26	" ammonia.....	NiCl <sub>2</sub> .6NH <sub>3</sub> .....	231.92	.....	.....
27	cyanide.....	Ni(CN) <sub>2</sub> .4H <sub>2</sub> O.....	110.8	.....	4H <sub>2</sub> O, 200°
28	ferrocyanide.....	Ni <sub>2</sub> Fe(CN) <sub>6</sub> .11H <sub>2</sub> O.....	527.72	.....	.....
29	fluoride.....	NiF <sub>2</sub> .....	96.70	2.855 <sup>14°</sup>	.....
30	" acid.....	NiF <sub>2</sub> .5HF.6H <sub>2</sub> O.....	304.84	2.132	.....
31	fluosilicate.....	NiSiF <sub>6</sub> .6H <sub>2</sub> O.....	309.20	2.109	†
32	formate.....	Ni(CHO <sub>2</sub> ) <sub>2</sub> .2H <sub>2</sub> O.....	184.75	2.1547	decomp.

\* Loses 6H<sub>2</sub>O at 160°.

† Decomposes at red heat.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	insoluble	.....	soluble alk., sulphide ..	brown powder..
2	.....	s. soluble	.....	soluble $\text{NH}_3$ aq .....	needles.....
3	.....	0.133 <sup>18°</sup>	2.13 <sup>70°</sup>	sol. acids, $\text{NH}_3$ aq., $\text{NH}_4$ salts	yellow monocl..
4	.....	decomp.	.....	.....	yellowish.....
5	.....	decomp.	decomp.	sol. dil. a., conc. $\text{H}_2\text{SO}_4$	yellow hexag...
6*	.....	246 <sup>13°</sup>	511.6 <sup>100°</sup>	soluble alcohol .....	red rhombic...
7	.....	insoluble	.....	soluble $\text{HCl}$ .....	reddish.....
8	.....	insoluble	decomp.	soluble dil. acids .....	olive green....
9	-243 to -233	.....	.....	.....	.....
10	.....	insoluble	insoluble	sol. dil. $\text{HNO}_3$ ; s. sol. $\text{HCl}$ , $\text{H}_2\text{SO}_4$	.....
11	.....	16.6	.....	insoluble alcohol .....	apple gr. prisms
12	.....	v. soluble	.....	.....	green crystals..
13	.....	2.53 <sup>5°</sup>	39.28 <sup>5°</sup>	s. sol. $(\text{NH}_4)_2\text{SO}_4$ aq...	green crystals..
14	.....	insoluble	nsoluble	soluble aqua regia .....	.....
15	.....	insoluble	.....	soluble alkalies, acids ..	greenish white .
16	.....	decomp.	decomp.	soluble $\text{HNO}_3$ .....	prisms. [octah.
17	.....	28	.....	.....	monometric
18	.....	deliques. and soluble	.....	soluble alcohol, ether ..	yellow scales...
19	.....	v. soluble	.....	sol. al., ether, $\text{NH}_3$ aq...	green needles..
20	.....	v. soluble	decomp.	.....	violet powder..
21	.....	insoluble	insoluble	insoluble acids .....	greenish rhomb.
22	.....	insoluble	decomp.	soluble acids, $\text{NH}_4$ salts	green.....
23	43°	insoluble	insoluble	sol. al., $\text{CH}_3\text{Cl}$ , conc. $\text{HNO}_3$	needles.....
24	.....	deliques. and soluble	.....	sol. alcohol, $\text{NH}_3$ aq ...	yellow scales...
25	.....	50	soluble	v. soluble alcohol .....	green hexagonal
26	.....	soluble	decomp.	insol. al.; sol. $\text{NH}_3$ aq ..	.....
27	decomp.	insoluble	insoluble	sol. $\text{KCN}$ ; insol. dil. $\text{KCl}$	apple green pl..
28	.....	insoluble	.....	insol. $\text{HCl}$ ; sol. $\text{NH}_3$ aq .	greenish white..
29	.....	0.02	.....	insol. a., al., ether .....	.....
30	.....	.....	.....	.....	trimetric prisms
31	.....	v. soluble	.....	.....	green rhomboh.
32	.....	soluble	.....	.....	green crystals..

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Nickel hydroxide-ous	4Ni(OH) <sub>2</sub> .H <sub>2</sub> O . . . .	388.88	4.36	decomp.
2	“ -ic . . . .	Ni(OH) <sub>2</sub> . . . . .	109.72	. . . . .	decomp.
3	iodide . . . . .	NiI <sub>2</sub> . . . . .	312.64	. . . . .	sublimes
4	“ ammonia . . . .	NiI <sub>2</sub> .6NH <sub>3</sub> . . . . .	414.96	2.101	decomp.
5	nitrate . . . . .	Ni(NO <sub>3</sub> ) <sub>2</sub> .6H <sub>2</sub> O . . . .	290.88	2.065 <sup>14</sup> °	56.7°
6	“ ammonia . . . .	Ni(NO <sub>3</sub> ) <sub>2</sub> .4NH <sub>3</sub> . 2H <sub>2</sub> O . . . . .	287.03	. . . . .	. . . . .
7	oxide mon- . . . .	NiO . . . . .	74.70	6.6-6.8	* †
8	“ sesqui- . . . .	Ni <sub>2</sub> O <sub>3</sub> . . . . .	165.40	4.84 <sup>16</sup> °	†
9	oxyiodide . . . . .	NiI <sub>2</sub> .9NiO.15H <sub>2</sub> O . . . .	1255.2	. . . . .	. . . . .
10	phosphate . . . . .	Ni <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> .7H <sub>2</sub> O . . . .	492.21	. . . . .	. . . . .
11	phosphide . . . . .	Ni <sub>3</sub> P <sub>2</sub> . . . . .	238.10	5.99	. . . . .
12	“ . . . . .	Ni <sub>3</sub> P . . . . .	148.4	6.3 <sup>15</sup> °	. . . . .
13	pyrophosphate . . . .	Ni <sub>2</sub> P <sub>2</sub> O <sub>7</sub> .6H <sub>2</sub> O . . . . .	399.50	3.9303 <sup>25</sup> °	. . . . .
14	potassium cyanide .	Ni(CN) <sub>2</sub> .2KCN.H <sub>2</sub> O . . . .	259.18	1.875 <sup>11</sup> °	H <sub>2</sub> O, 100°
15	selenide . . . . .	NiSe . . . . .	137.90	8.46	. . . . .
16	sulphate . . . . .	NiSO <sub>4</sub> . . . . .	154.76	3.418 <sup>15</sup> °	. . . . .
17	“ . . . . .	NiSO <sub>4</sub> .6H <sub>2</sub> O . . . . .	262.86	2.031	6H <sub>2</sub> O, 280°
18	“ . . . . .	NiSO <sub>4</sub> .7H <sub>2</sub> O . . . . .	280.87	1.98	98°-100°
19	sulphide mono- . . . .	NiS . . . . .	90.76	4.60	. . . . .
20	“ sub- . . . . .	Ni <sub>2</sub> S . . . . .	149.46	5.52	. . . . .
21	sulphite . . . . .	NiSO <sub>3</sub> .6H <sub>2</sub> O . . . . .	246.86	. . . . .	. . . . .
22	Nickelo-nickelic oxide	Ni <sub>3</sub> O <sub>4</sub> . . . . .	240.10	. . . . .	. . . . .
23	sulphide . . . . .	Ni <sub>3</sub> S <sub>4</sub> . . . . .	304.34	. . . . .	. . . . .
24	Nitric Acid . . . . .	HNO <sub>3</sub> . . . . .	63.05	1.530 <sup>17</sup>	-41.3
25	Nitrogen . . . . .	N <sub>2</sub> . . . . .	28.08	0.96737 A.	-210.5°†
26	bromophosphide . . .	NPBr <sub>2</sub> . . . . .	204.96	. . . . .	. . . . .
27	chloride . . . . .	NCl <sub>3</sub> . . . . .	120.39	1.653	expl. 95°
28	chlorophosphide . . .	N <sub>2</sub> P <sub>2</sub> Cl <sub>2</sub> . . . . .	347.82	1.98	114°
29	iodoazomide . . . . .	NH <sub>3</sub> NI <sub>3</sub> . . . . .	412.01	3.5	explodes
30	oxide mon-(nitrous)	N <sub>2</sub> O . . . . .	44.08	.937 <sup>0</sup> 1.530 A	-102.3°
31	“ di- (nitric) . . .	NO(N <sub>2</sub> O <sub>2</sub> ) . . . . .	30.04	1.0367 A	150° . . . .
32	oxide tri- . . . . .	N <sub>2</sub> O <sub>3</sub> . . . . .	76.08	1.447- <sup>20</sup>	-111°
33	“ tetr- . . . . .	NO <sub>2</sub> (N <sub>2</sub> O <sub>4</sub> ) . . . . .	46.04	1.4903†	-10.1°

\* Absorbs oxygen at 400°.

† Is reduced to NiO at 600°.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	insoluble	.....	sol. a., NH <sub>3</sub> aq. insol. alk.	pale green . . . .
2	.....	insoluble	insoluble	soluble acids, NH <sub>3</sub> aq. . .	black . . . . .
3	.....	soluble	.....	.....	black scales. . . .
4	.....	decomp.	.....	soluble NH <sub>3</sub> aq. . . . .	.....
5	136.7°	50	v. soluble	soluble alcohol, NH <sub>3</sub> aq.	green monocl. . .
6	.....	v. soluble	.....	insoluble alcohol. . . . .	.....
7	.....	insoluble	.....	soluble acids, NH <sub>3</sub> aq. . .	green octahedral
8	.....	insoluble	.....	soluble HCl, NH <sub>3</sub> aq. . . .	black . . . . .
9	.....	insoluble	.....	sol. HNO <sub>3</sub> ; insol. NH <sub>3</sub> aq.	.....
10	.....	insoluble	insoluble	soluble acids, NH <sub>4</sub> salts	green. . . . .
11	.....	insoluble	insoluble	insoluble HCl. . . . .	dark green. . . .
12	.....	insoluble	.....	insol. a.; sol. HNO <sub>3</sub> + HF	gray crystals. . .
13	.....	insoluble	.....	soluble acids, NH <sub>3</sub> aq. . .	green. . . [clinic
14	.....	soluble	.....	decomp. by acids. . . . .	red yel. mono-
15	.....	insoluble	.....	sol. HNO <sub>3</sub> , aqua regia.	crystalline. . . .
16	.....	29.3°	83.7 <sup>100°</sup>	insoluble alcohol, ether.	yellow regular. .
17	.....	soluble	soluble	v. soluble al., NH <sub>3</sub> aq. . .	bluish tetrag. .
18	§	75.6 <sup>15.5°</sup>	226.4 <sup>70°</sup>	v. soluble alcohol. . . . .	green. monocl. or monoclinic
19	.....	insoluble	decomp.	sol. HNO <sub>3</sub> , aqua regia. . .	black hexag. . . .
20	.....	insoluble	.....	soluble HNO. . . . .	yellow crystals.
21	.....	insoluble	.....	soluble HCl, H <sub>2</sub> SO <sub>4</sub> . . . .	green tetrahed. .
22	.....	insoluble	.....	soluble acids. . . . .	gray. . . . .
23	.....	insoluble	.....	soluble HNO <sub>3</sub> . . . . .	grayish black rhombohedral
24	86°	∞	.....	∞	.....
25	-195.5°	2.348c.c. <sup>0°</sup>	1.542c.c. <sup>20°</sup>	s. soluble alcohol. . . . .	crystals. . . . .
26	.....	insoluble	.....	sol. ether, CS <sub>2</sub> , CHCl <sub>3</sub> . . .	.....
27	.....	insoluble	decomp.	sol. CS <sub>2</sub> , PCl <sub>3</sub> , CHCl <sub>3</sub> . . .	yellowish oil. . .
28	255°	decomp.	.....	sol. al., ether, CHCl <sub>3</sub> . . .	trimetric. . . . .
29	.....	decomp.	explodes	sol. HCl, KCN, Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> , insol. ab. al.	red ortho- rhombic. . . . .
30	-89.8°	130.52 <sup>0°</sup>	60.82 <sup>24°</sup>	soluble al., conc. H <sub>2</sub> SO <sub>4</sub>	.....
31	-149.9°	10c.c.	.....	3.5 c.c. conc. H <sub>2</sub> SO <sub>4</sub> , 26.6 al., FeSO <sub>4</sub> aq.	.....
32	decomp.	soluble	.....	sol. HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , ether	blue solid, or red brown gas
33	21.64°	soluble	.....	sol. CS <sub>2</sub> , CHCl <sub>3</sub> , conc. HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub>	reddish yellow.

† The anhydrous salt.

§ Loses 6H<sub>2</sub>O at 103°.

¶ At 84 mm.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
<b>Nitrogen</b>					
1	oxide pent-.....	N <sub>2</sub> O <sub>5</sub> .....	108.08	1.642 <sup>18°</sup>	30°
2	oxy bromide..... (nitrosyl bromide)	NOBr.....	110.00	> 1.0	-2°
3	oxychloride..... (nitrosyl chloride)	NOCl.....	65.49	1.4165- <sup>12°</sup>	-60°
4	selenide.....	NSe.....	93.24		explodes
5	sulphide.....	N <sub>4</sub> S <sub>4</sub> .....	184.40	2.22 <sup>15°</sup>	158°
6	" penta-.....	N <sub>2</sub> S <sub>5</sub> .....	188.38	1.901 <sup>†</sup>	10°-11°
7	sulphochloride.....	NS <sub>2</sub> Cl.....	113.61		decomp.
8	Nitryl fluoride.....	NO <sub>2</sub> F.....	65.04	2.24 A.	-139°
9	Osmium.....	Os.....	191	{ 22.48	2500° 2500°
10	ammonium trichloride	2(OsCl <sub>3</sub> .2NH <sub>4</sub> Cl) 3H <sub>2</sub> O	862.84		
11	chloride di-.....	OsCl <sub>2</sub> .....	261.90		
12	" tri-.....	OsCl <sub>3</sub> .3H <sub>2</sub> O.....	351.40		
13	" tetra-.....	OsCl <sub>4</sub> .....	332.80		
14	oxide mon-.....	OsO.....	207.00		
15	" sesqui-.....	Os <sub>2</sub> O <sub>3</sub> .....	430.00		
16	" di-.....	OsO <sub>2</sub> .....	223.00		
17	" tetra-.....	OsO <sub>4</sub> .....	255.00	8.89	20°
18	potassium trichloride	2(OsCl <sub>3</sub> .3KCl)6H <sub>2</sub> O	1150.4		†
19	potassium tetrachloride	OsCl <sub>4</sub> .2KCl.....	482.00		†
20	sulphide di-.....	OsS <sub>2</sub> .....	255.12		
21	" tetra-.....	OsS <sub>4</sub> .....	319.24		oxidizes
22	sulphite.....	OsSO <sub>3</sub> .....	271.06		
23	Oxalic Acid.....	H <sub>2</sub> C <sub>2</sub> O <sub>4</sub> .2H <sub>2</sub> O.....	126.05	1.653 <sup>18.5°</sup>	98°
24	Oxygen.....	O <sub>2</sub> .....	32.00	1.10535 A.	< -230°
25	Ozone.....	O <sub>3</sub> .....	48.00	1.658 A.	dec. 270°
26	Palladium.....	Pd.....	106.5	11.4-11.9	1541°
27	bromide.....	PdBr <sub>2</sub> .....	266.42		
28	chloride.....	PdCl <sub>2</sub> .2H <sub>2</sub> O.....	213.43		
29	cyanide.....	Pd(CN) <sub>2</sub> .....	158.58		decomp.
30	fluoride.....	PdF <sub>2</sub> .....	144.50		
31	hydride.....	PdH.....	214.01	11.06	decomp.
32	hydroxide.....	Pd(OH) <sub>2</sub> .....	140.52		
33	iodide.....	PdI <sub>2</sub> .....	360.44		100°

\* At 751 mm.

† Sublimes at 135°.



Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	45°-50°	soluble	.....	.....	rhombic.....
2	.....	decomp.	decomp.	.....	dark brown....
3	-5.6°*	decomp.	.....	.....	solid, lem. yel. crys., or. red.
4	200°	insoluble	.....	soluble HNO <sub>3</sub> , CS <sub>2</sub> .....	orange yellow..
5†	.....	insoluble	decomp.	sol. CS <sub>2</sub> , al., ether.....	orange red rhomb. prisms
6	decomp.	insoluble	.....	s. sol. CS <sub>2</sub> , alcohol.....	red.....
7	.....	soluble	decomp.	soluble CS <sub>2</sub> .....	citron yellow..
8	-63.5°	decomp.	.....	.....	.....
9	.....	insoluble	insoluble	s. sol. HNO <sub>3</sub> , aqua regia	bluish amorph..
.....	.....	insoluble	insoluble	insol. acids, aqua regia.	bluish.....
10	.....	v. soluble	decomp.	v. sol. al.; insol. ether..	red. brown crys.
11	.....	soluble	.....	sol. al., ether, NaCl....	green needles..
12	.....	soluble	.....	.....	.....[needles
13	.....	soluble	.....	soluble HCl, alcohol...	red to yellow
14	.....	insoluble	insoluble	insoluble acids.....	grayish black..
15	.....	insoluble	.....	insoluble acids.....	black.....
16	.....	insoluble	.....	insoluble acids.....	copper red.....
17	100°	v. soluble	v. soluble	sol. al., ether, NH <sub>3</sub> aq.	monoclinic....
18	.....	v. soluble	.....	v. soluble al.; insol. ether	dark red cryst..
19	.....	s. soluble	.....	insoluble al., HCl.....	red octahedra..
20	.....	s. soluble	.....	insoluble alkalies.....	brownish yel..
21	.....	insoluble	.....	soluble HNO <sub>3</sub> , insol. alk.	brownish black.
22	.....	insoluble	.....	soluble HCl.....	bluish black...
23	.....	11.120°	350	soluble alcohol.....	crystalline.....
24	-182.5°	4.89 c.c.°	.....	sol. melted Ag.; s. sol. al.	.....
25	-119°	0.88	.....	oil of turp. and cinnamon	.....
26	.....	insoluble	insoluble	sol. conc. a., aqua regia	regular hexag..
27	.....	insoluble	insoluble	soluble HBr.....	brown.....
28	.....	soluble	soluble	soluble HCl.....	red brown pris..
29	.....	insoluble	insoluble	soluble KCN, NH <sub>3</sub> aq.	yellow.....
30	.....	s. soluble	.....	soluble HF.....	brown.....
31	.....	.....	.....	.....	.....
32	.....	insoluble	.....	sol. acids, alk.....	brown.....
33	360°	insoluble	insoluble	insol. al., ether; sol. KI	black.....

† Loses 6H<sub>2</sub>O at 150°-180°.

‡ Decomposes at red heat.

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Palladium nitrate.....	Pd(NO <sub>3</sub> ) <sub>2</sub> .....	230.58	.....	decomp.
2	oxide sub-.....	Pd <sub>2</sub> O.....	229.00	.....	*
3	“ mon-.....	PdO.....	122.50	.....	O, 820°
4	“ di-.....	PdO <sub>2</sub> .....	138.50	.....	O, 200°
5	sulphate.....	PdSO <sub>4</sub> ·2H <sub>2</sub> O.....	238.59	.....	.....
6	sulphide sub-.....	Pd <sub>2</sub> S.....	245.06	7.303 <sup>15°</sup>	red heat
7	“ mono-.....	PdS.....	138.56	.....	oxidizes..
8	“ di-.....	PdS <sub>2</sub> .....	170.62	.....	decomp.
9	Pallados diammo- nium chloride.....	PdCl <sub>2</sub> ·2NH <sub>3</sub> .....	211.53	.....	.....
10	hydroxide.....	Pd(OH) <sub>2</sub> ·2NH.....	174.64	.....	dec. < 100°
11	Perchloric Acid.....	HClO <sub>4</sub> .....	100.46	1.764 <sup>4°</sup>	.....
12	“ “.....	HClO <sub>4</sub> ·H <sub>2</sub> O.....	118.48	1.7756 <sup>4°</sup>	50°
13	“ “.....	HClO <sub>4</sub> ·2H <sub>2</sub> O.....	136.49	1.65	-20.6°
14	Periodic Acid.....	HIO <sub>4</sub> ·2H <sub>2</sub> O.....	228.01	.....	130°
15	Permanganic Acid.....	HMnO <sub>4</sub> .....	120.01	.....	.....
16	Permolybdic Acid.....	HMoO <sub>4</sub> ·2H <sub>2</sub> O.....	197.04	.....	.....
17	Phosphamic Acid.....	PONH <sub>2</sub> ·(OH) <sub>2</sub> .....	97.07	.....	decomp.
18	Phosphine.....	PH <sub>3</sub> .....	34.02	1.185 A.	-133.5°
19	“ liquid.....	P <sub>2</sub> H <sub>4</sub> .....	66.03	1.007-1.016	< -10°
20	“ solid.....	(P <sub>4</sub> H <sub>2</sub> ) <sub>3</sub> .....	378.05	.....	burns 200°
21	Phosphonium bromide	PH <sub>4</sub> Br.....	114.99	1.906 A.	30°
22	“ chloride.....	PH <sub>4</sub> Cl.....	70.48	.....	26°
23	“ hydroxide.....	PH <sub>4</sub> OH.....	52.04	.....	.....
24	“ iodide.....	PH <sub>4</sub> I.....	162.00	.....	.....
25	“ sulphate.....	(PH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .....	166.12	.....	.....
26	Phosphoric Acid hypo-	H <sub>4</sub> P <sub>2</sub> O <sub>6</sub> .....	162.03	.....	55°
27	meta-.....	HPO <sub>3</sub> .....	80.01	.....	†
28	ortho.....	H <sub>3</sub> PO <sub>4</sub> .....	98.02	1.884 <sup>18.2°</sup>	38.6°
29	pyro-.....	H <sub>4</sub> P <sub>2</sub> O <sub>7</sub> .....	178.03	.....	61°
	Phosphorous Acid				
30	hypo-.....	H <sub>3</sub> PO <sub>2</sub> .....	66.02	1.493 <sup>18.8°</sup>	26.5°
31	ortho.....	H <sub>3</sub> PO <sub>3</sub> .....	82.02	1.651 <sup>21.2°</sup>	70.1°
32	pyro-.....	H <sub>4</sub> P <sub>2</sub> O <sub>5</sub> .....	146.03	.....	38°
33	Phosphorous yellow	P <sub>4</sub> .....	124	1.823 <sup>220°</sup>	44.2°
34	“ red.....	P <sub>4</sub> .....	124	2.11	350° (yel.)
35	bromide tri-.....	PBr <sub>3</sub> .....	270.88	2.8847	-41.5°

\* Decomposes at red heat.

† Sublimes at white heat.

Number.	Boiling Point, C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	soluble	decomp.	soluble $\text{HNO}_3$ .....	brown yel.rhom.
2	.....	insoluble	.....	insoluble acids.....	black.....
3	.....	insoluble	.....	s. soluble acids.....	black.....
4	.....	insoluble	.....	s. soluble acids.....	black.....
5	.....	v. soluble	decomp.	.....	brown crystals.
6	.....	insoluble	.....	insol. acids; sol. aq. regia	gray.....
7	.....	insoluble	.....	soluble $\text{HCl}$ ; insoluble $(\text{NH}_4)_2\text{S}$	black.....
8	.....	insoluble	.....	soluble aqua regia.....	dark brown....
9	.....	.....	.....	.....	.....
10	.....	s. soluble	.....	soluble acids, $\text{NH}_3$ aq...	yel. or red crys.
11	39°	soluble	decomp.	.....	crystalline.....
12	decomp.	soluble	.....	.....	oily.....
13	200°	v. soluble	.....	soluble alcohol.....	needles.....
14	734°	v. soluble	.....	soluble alcohol, ether..	crystalline.....
15	.....	v. soluble	decomp.	.....	monoclinic....
16	.....	v. soluble	v. soluble	.....	white crystals..
17	.....	v. soluble	.....	.....	.....
18	-85°	s. soluble	insoluble	sol. al., ether, $\text{Cu}_2\text{Cl}_2$ ...	.....
19	57°-58°	insoluble	.....	sol. al., turpentine.....	.....
20	.....	insoluble	insoluble	insoluble alcohol.....	yellow.....
21	.....	decomp.	decomp.	.....	regular.....
22	sublimes	decomp.	.....	.....	regular.....
23	.....	.....	.....	.....	crystalline.....
24	80°	decomp.	.....	decomp. by alcohol.....	tetrag. prisms..
25	.....	decomp.	.....	.....	crystals.....
26	dec. 70°	soluble	.....	.....	crystals.....
27	.....	soluble	soluble	.....	glassy.....
28	†	v. soluble	.....	soluble alcohol.....	rhombic.....
29	-10	v. soluble	decomp.	v. soluble.....	needles.....
30	decomp.	∞	∞	.....	tablets.....
31	§	∞	∞	.....	crystalline.....
32	¶	decomp.	.....	.....	needles.....
33	290°	0.00033	s. soluble	1.50°, 1081° benzol; 0.4 al.; 1000 $\text{CS}_2$ ; .430°. 235° ether; sol. alk.	yellow regular .
34	.....	insoluble	insoluble	insol. ether, $\text{CS}_2$ ; sol. alk.	red hexagonal rhombohedral
35	175.3°	decomp.	.....	soluble $\text{CS}_2$ , ether, $\text{CHCl}_3$	.....

† Loses  $\frac{1}{2} \text{H}_2\text{O}$  at 213°.

§ Decomposes at 200°.

¶ Decomposes at 130°.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (A).	Melting Point. °C.
<b>Phosphorus</b>					
1	bromide penta-....	PBr <sub>5</sub> .....	430.80	.....	100°
2	bromofluoride.....	PBr <sub>2</sub> F <sub>3</sub> .....	247.92	.....	-20°
3	bromonitride.....	PBr <sub>2</sub> N.....	204.96	.....	188°-190°
4	bromotrichloride di	PBr <sub>2</sub> Cl <sub>3</sub> .....	297.27	.....	35°
5	“ octo-	PBr <sub>3</sub> Cl <sub>3</sub> .....	777.03	.....	25°
6	“ tetra-	PBr <sub>4</sub> Cl <sub>3</sub> .....	457.19	.....	.....
7	chloride tri-.....	PCl <sub>3</sub> .....	137.35	1.6128 <sub>2</sub>	-111.8°
8	“ penta-.....	PCl <sub>5</sub> .....	208.25	3.60 <sup>296</sup> D.	148°†
9	chlorofluoride.....	PCl <sub>2</sub> F <sub>3</sub> .....	158.90	.....	-8°
10	fluoride tri-.....	PF <sub>3</sub> .....	88.00	.....	-160°
11	“ penta-.....	PF <sub>5</sub> .....	126.00	4.30 D.	-83°
12	hepta bromide di- chloride	PBr <sub>7</sub> Cl <sub>2</sub> .....	661.62	.....	.....
13	iodide di-.....	P <sub>2</sub> I <sub>4</sub> .....	284.94	.....	110°
14	“ tri-.....	PI <sub>3</sub> .....	411.91	.....	61°
15	iodochloride.....	PI <sub>2</sub> Cl <sub>3</sub> .....	360.29	.....	.....
16	monobromtetra- chloride	PBrCl <sub>4</sub> .....	252.76	.....	.....
17	nitride.....	P <sub>3</sub> N <sub>5</sub> .....	163.20	.....	§
18	oxide tri-.....	P <sub>4</sub> O <sub>6</sub> .....	220.00	2.135 <sub>2</sub>	22.5°
19	“ tetr-.....	P <sub>2</sub> O <sub>4</sub> .....	126.00	2.537 <sup>22.6</sup> <sub>4</sub>	>100°
20	“ pent-.....	P <sub>2</sub> O <sub>5</sub> .....	142.00	2.387.....	
21	oxybromide.....	POBr <sub>3</sub> .....	286.88	2.822	46°
22	oxybromdichloride	POBr <sub>2</sub> Cl <sub>2</sub> .....	197.86	2.049 <sub>2</sub>	13°
23	oxychloride.....	POCl <sub>3</sub> .....	153.35	1.71163 <sub>1</sub>	-1.5°
24	oxyfluoride.....	POF <sub>3</sub> .....	104.00	.....	-68°
25	oxyiodide.....	P <sub>2</sub> O <sub>5</sub> I <sub>6</sub> .....	982.82	.....	140°
26	oxynitride.....	PON.....	61.04	.....	red heat
27	selenide sub-.....	P <sub>2</sub> Se.....	203.20	.....	-12°
28	“ mono-.....	P <sub>2</sub> Se.....	141.20	.....	.....
29	“ tri-.....	P <sub>2</sub> Se <sub>3</sub> .....	299.60	.....	.....
30	“ penta.....	P <sub>2</sub> Se <sub>5</sub> .....	458.00	.....	.....
31	sulphide sesqui-....	P <sub>2</sub> S <sub>3</sub> .....	220.18	2.00 <sup>110</sup>	166°
32	“ tri-.....	P <sub>2</sub> S <sub>6</sub> .....	316.36	.....	290°
33	“ di-.....	P <sub>2</sub> S <sub>8</sub> .....	285.36	.....	297°
34	“ penta.....	P <sub>2</sub> S <sub>5</sub> .....	222.30	2.03	275°
35	sulphobromchloride	PSBrCl <sub>2</sub> .....	213.92	2.12 <sub>1</sub>	-30°
36	sulphobromide.....	PSBr <sub>3</sub> .....	302.94	2.85 <sup>170</sup>	36.4°-38°
37	“.....	PSBr <sub>3</sub> .H <sub>2</sub> O.....	320.96	2.7937 <sup>180</sup>	35°
38	sulphochloride.....	PSCl <sub>3</sub> .....	169.41	1.634 <sup>220</sup>	-35°

\* In vacuo.

† Under pressure.

‡ Decomposes at 250°.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	dec. 100°	decomp.	.....	.....	[rhombohedral
2	.....	decomp.	.....	.....	citron yellow
3	150°*	.....	.....	sol. ether, CS <sub>2</sub> , CHCl <sub>3</sub>	pale yellow. . . .
4	.....	.....	.....	.....	orange crystals.
5	.....	.....	.....	.....	brown needles. .
6	.....	decomp.	.....	.....	dark red cryst..
7	76°	decomp.	decomp.	sol. CS <sub>2</sub> , ether, CHCl <sub>3</sub>	.....
8	160°-165°	decomp.	.....	sol. CS <sub>2</sub> , C <sub>6</sub> H <sub>5</sub> COCl	yellow rhombic.
9	†	decomp.	.....	soluble alcohol	.....
10	-95°	decomp.	.....	soluble alcohol, alkalies	.....
11	-75°	decomp.	.....	.....	.....
12	.....	decomp.	.....	soluble PCl <sub>3</sub>	prismatic. . . .
13	.....	decomp.	.....	soluble CS <sub>2</sub>	orange prisms. .
14	decomp.	decomp.	decomp.	soluble CS <sub>2</sub>	red prisms. . . .
15	.....	decomp.	.....	soluble CS <sub>2</sub>	red hexagonal .
16	.....	decomp.	.....	.....	yellow crystals.
17	.....	insoluble	s. decomp.	.....	amorphous . . . .
18	173.1°	soluble	decomp.	sol. CS <sub>2</sub> , ether, CHCl <sub>3</sub>	liquid or monocl.
19	180°	soluble	.....	.....	orthorhombic . .
20	.....	v. soluble	.....	soluble conc. H <sub>2</sub> SO <sub>4</sub>	amorphous . . . .
21	195°	decomp.	.....	sol. ether, con. H <sub>2</sub> SO <sub>4</sub> , CS <sub>2</sub>	plates. . . . .
22	137.6°	decomp.	.....	.....	tablets. . . . .
23	107.2°	decomp.	decomp.	decomp.	tablets. . . . .
24	-40°	decomp.	.....	decomp. by alcohol	crystalline. . . .
25	decomp.	soluble	.....	soluble alcohol, ether	red crystals. . . .
26	.....	insoluble	.....	insoluble acids, alkalies	amorphous . . . .
27	burns	decomp.	.....	sol. CS <sub>2</sub> ; insol. al., ether	dark yellow . . . .
28	.....	decomp.	.....	s. sol. CS <sub>2</sub> ; insol. al., ether	red. . . . .
29	.....	.....	decomp.	sol. KOH; insol. CS <sub>2</sub>	dark red. . . . .
30	.....	decomp.	.....	sol. CCl <sub>4</sub> ; insol. CS <sub>2</sub>	dark red need..
31	380°	insoluble	decomp.	sol. CS <sub>2</sub> , PCl <sub>3</sub> , PSCl <sub>3</sub>	yellow rhomb..
32	490°	decomp.	.....	sol. al., ether, alkalies	yellow crystals.
33	†337°	.....	.....	s. soluble CS <sub>2</sub>	yellow needles .
34	518°-520°	decomp.	.....	sol. CS <sub>2</sub> , alkalies	yellow crystals.
35	150°	decomp.	.....	.....	yellow. . . . .
36	decomp.	decomp.	.....	sol. CS <sub>2</sub> , ether, PCl <sub>3</sub> , PBr <sub>3</sub>	yellow octah... .
37	.....	.....	.....	.....	yellow crystals.
38	125°	decomp.	.....	soluble CS <sub>2</sub>	.....

§ Decomp. at red heat.

|| Sublimes at red heat.

¶ At 10½ mm.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
<b>Phosphorus</b>					
1	sulphocyanate.....	P(CNS) <sub>3</sub> .....	205.30	1.625 <sup>18°</sup>	< -20°
2	sulphofluoride.....	PSF <sub>3</sub> .....	120.06	.....	.....
3	sulphoxide.....	P <sub>2</sub> S <sub>4</sub> O <sub>6</sub> .....	348.24	.....	102°
4	thioamide.....	PS(NH <sub>2</sub> ) <sub>3</sub> .....	111.23	1.713°	dec. 200°
5	trioxytetrachloride	P <sub>2</sub> O <sub>3</sub> Cl <sub>4</sub> .....	251.80	1.787°	.....
6	trisulphotetabromide	P <sub>2</sub> S <sub>3</sub> Br <sub>4</sub> .....	478.02	2.262 <sup>17°</sup>	.....
7	Phosphotungstic Acid	P <sub>2</sub> O <sub>5</sub> .12WO <sub>3</sub> .42H <sub>2</sub> O..	3682.7	.....	.....
8	Platinic Acid brom-..	H <sub>2</sub> PtBr <sub>6</sub> .9H <sub>2</sub> O.....	838.72	.....	dec. 100°
9	“ “ chlor-..	H <sub>2</sub> PtCl <sub>6</sub> .6H <sub>2</sub> O.....	517.61	2.431	decomp.
10	“ “ iodo-..	H <sub>2</sub> PtI <sub>6</sub> .9H <sub>2</sub> O.....	1120.8	.....	.....
11	Platino-platinic oxide	Pt <sub>2</sub> O <sub>4</sub> .....	648.40	.....	†
12	Platinum.....	Pt.....	194.8	21.48 <sup>17.6°</sup>	1710 1780
13	bromide di-.....	PtBr <sub>2</sub> .....	354.72	.....	dec. 300°
14	“ tetra-.....	PtBr <sub>4</sub> .....	514.64	.....	.....
15	chloride di-.....	PtCl <sub>2</sub> .....	265.70	5.87 <sup>11°</sup>	†
16	“ tetra-.....	PtCl <sub>4</sub> .....	336.60	.....	decomp...
17	“ “.....	PtCl <sub>4</sub> .5H <sub>2</sub> O.....	426.68	2.43	4H <sub>2</sub> O, 100°
18	cyanide.....	Pt(CN) <sub>2</sub> .....	246.88	.....	.....
19	fluoride.....	PtF <sub>4</sub> .....	270.80	.....	†
20	hydroxide (-ous)...	Pt(OH) <sub>2</sub> .....	228.82	.....	.....
21	“ “.....	Pt(OH) <sub>2</sub> .2H <sub>2</sub> O.....	264.85	.....	2H <sub>2</sub> O, 100°
22	“ “ (-ic)....	Pt(OH) <sub>4</sub> .....	262.83	.....	decomp ..
23	iodide di-.....	PtI <sub>2</sub> .....	448.74	.....	†
24	“ tetra-.....	PtI <sub>4</sub> .....	702.68	.....	.....
25	oxide mon-.....	PtO.....	210.8	.....	†
26	“ di-.....	PtO <sub>2</sub> .....	226.8	.....	.....
27	“ “.....	PtO <sub>2</sub> .H <sub>2</sub> O.....	244.82	.....	H <sub>2</sub> O, 100
28	“ “.....	PtO <sub>2</sub> .2H <sub>2</sub> O.....	262.83	.....	H <sub>2</sub> O, 100°
29	“ “.....	PtO <sub>2</sub> .3H <sub>2</sub> O.....	280.85	.....	dec. 300°
30	“ “.....	PtO <sub>2</sub> .4H <sub>2</sub> O.....	298.87	.....	decomp.
31	sulphide mono-.....	PtS.....	226.86	8.897	decomp.
32	“ di-.....	PtS <sub>2</sub> .....	258.92	5.27	decomp.
33	“ sesqui-.....	Pt <sub>2</sub> S <sub>3</sub> .....	485.78	5.52	.....
34	sulphate.....	Pt(SO <sub>4</sub> ) <sub>2</sub> .4H <sub>2</sub> O.....	458.98	.....	.....
35	Potassium.....	K.....	39.15	0.875 <sup>13°</sup>	62.5°
36	acetate.....	KC <sub>2</sub> H <sub>3</sub> O <sub>2</sub> .....	98.17	.....	.....
37	“ acid.....	KH(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> .....	158.21	.....	148°
38	aluminate.....	K <sub>2</sub> Al <sub>2</sub> O <sub>4</sub> .3H <sub>2</sub> O.....	250.55	.....	.....

\* At 7.6 atmosphere.

† Decomposes at red heat.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	265°	decomp.	.....	sol. al., ether, CS <sub>2</sub> , CHCl <sub>3</sub>	.....
2	3.8°*	decomp.	.....	s. sol. ether; insol. CS <sub>2</sub>	gas
3	295°	decomp.	.....	50, CS <sub>2</sub>	tetragonal
4	.....	s. soluble <sup>†</sup>	decomp.	.....	yellow amorph.
5	210°–215°	decomp.	.....	.....	yellow oil
6	decomp.	.....	.....	.....	.....
7	.....	soluble	.....	soluble alcohol, ether	.....
8	.....	v. soluble	v. soluble	v. sol. al., ether, CHCl <sub>3</sub>	red monoclinic
9	.....	v. soluble	v. soluble	soluble alcohol, ether	red brown
10	.....	sol. and dec.	.....	.....	brown monocl.
11	.....	insoluble	.....	insoluble acids	black
12	.....	insoluble	insoluble	sol. aq. r., fused alk.	grayish
13	.....	insoluble	insoluble	soluble HBr, KBr	brown
14	.....	0.41 <sup>20°</sup>	s. soluble	sol. al., ether, HBr	dark brown
15	.....	insoluble	insoluble	soluble HCl, NH <sub>3</sub> aq.	brown
16	.....	v. soluble	.....	soluble alcohol, ether	brown
17	.....	v. soluble	s. soluble	soluble alcohol, ether	red monoclinic
18	.....	insoluble	insoluble	insoluble alkalies	yellow-brown
19	.....	sol. and dec.	.....	.....	buff crystals
20	.....	insoluble	insoluble	sol. HCl, HBr, SO <sub>2</sub> aq. alk.	black
21	.....	insoluble	insoluble	sol. acids, alkalies	yellow
22	.....	insoluble	insoluble	v. sol. acids, alkalies	reddish brown
23	.....	insoluble	insoluble	insol. a.; sol. Na <sub>2</sub> SO <sub>3</sub>	black
24	.....	insoluble	.....	sol. alk., HI, KI	br. black amor.
25	.....	insoluble	.....	sol. H <sub>2</sub> SO <sub>4</sub> , conc. HCl	violet to black
26	.....	insoluble	.....	insoluble acids	black
27	.....	insoluble	.....	sol. HCl, NaOH; insol. H <sub>2</sub> C <sub>2</sub> H <sub>3</sub> O <sub>2</sub>	yellow
28	.....	insoluble	.....	.....	brown
29	.....	insoluble	insoluble	insol. HCl, aq. r.	black
30	.....	insoluble	insoluble	sol. acids	yellow needles
31	.....	insoluble	.....	insol. a.; sol. (NH <sub>4</sub> ) <sub>2</sub> S	black. [needles
32	.....	insoluble	.....	sol. (NH <sub>4</sub> ) <sub>2</sub> S, aqua regia	black or gray
33	.....	insoluble	.....	insol. a.; sol. aqua regia	steel gray
34	.....	soluble	decomp.	sol. a., al., ether	yellow plates
35	757.5°	decomp.	decomp.	sol. a., al., mercury	.....
36	188°	.....	492° <sup>82°</sup>	33 alcohol; insol. ether	.....
37	†	decomp.	.....	sol. glac. H <sub>2</sub> C <sub>2</sub> H <sub>3</sub> O <sub>2</sub>	needles plates
38	.....	v. soluble	.....	insol. al.; sol. alk.	crystals

† Decomposes at 300°–350°.

‡ Decomposes at 200°.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water=1. Air=1 (A). H <sub>2</sub> =1 (D).	Melting Point, °C.
1	Potassium amid....	KH <sub>2</sub> N.....	55.21	.....	271°
2	antimonate.....	KSbO <sub>3</sub> .....	207.35	.....	.....
3	antimonyl tartrate.	KSbOC <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .½H <sub>2</sub> O	332.39	2.6	½H <sub>2</sub> O, 100°
4	arsenate.....	K <sub>3</sub> AsO <sub>4</sub> .....	256.45	.....	.....
5	".....	K <sub>2</sub> HAsO <sub>4</sub> .....	218.31	.....	.....
6	arsenate acid.....	KH <sub>2</sub> AsO <sub>4</sub> .....	180.17	2.851	288°
7	arsenite.....	KAsO <sub>2</sub> .....	146.15	.....	.....
8	" acid.....	KH(AsO <sub>2</sub> ) <sub>2</sub> .H <sub>2</sub> O	272.17	.....	.....
9	aurate.....	KAuO <sub>2</sub> .3H <sub>2</sub> O.....	322.40	.....	.....
10	auricyanide.....	KAu(CN) <sub>4</sub> .1½H <sub>2</sub> O.....	367.53	.....	1½H <sub>2</sub> O
11	aurocyanide.....	KAu(CN) <sub>2</sub> .....	288.43	.....	.....
12	benzoate.....	KC <sub>7</sub> H <sub>5</sub> O <sub>2</sub> .3H <sub>2</sub> O.....	214.24	.....	.....
13	borate meta-.....	K <sub>2</sub> B <sub>2</sub> O <sub>4</sub> .....	164.30	.....	.....
14	" tetra-.....	K <sub>2</sub> B <sub>4</sub> O <sub>7</sub> .5H <sub>2</sub> O.....	324.38	1.74 †	5H <sub>2</sub> O, r. h.
15	borofluoride.....	KBF <sub>4</sub> .....	126.15	2.498 <sup>20°</sup>	.....
16	borotartrate.....	KC <sub>4</sub> H <sub>4</sub> BO <sub>7</sub> .....	214.18	1.832	.....
17	bromate.....	KBrO <sub>3</sub> .....	167.11	3.271 <sup>17.5</sup> <sub>17.5</sub>	434°
18	bromide.....	KBr.....	119.11	2.756 <sup>‡</sup>	710°–750°
19	bromoaurate.....	KAuBr <sub>4</sub> .....	556.19	.....	decomp.
20	".....	KAuBr <sub>4</sub> .2H <sub>2</sub> O.....	592.22	.....	.....
21	bromoplatinate.....	K <sub>2</sub> PtBr <sub>6</sub> .....	752.86	4.54	.....
22	bromoplatinite.....	K <sub>2</sub> PtBr <sub>4</sub> .....	592.94	.....	.....
23	carbonate.....	K <sub>2</sub> CO <sub>3</sub> .....	138.30	2.29	860–898°
24	".....	K <sub>2</sub> CO <sub>3</sub> .2H <sub>2</sub> O.....	174.33	2.043	.....
25	".....	2K <sub>2</sub> CO <sub>3</sub> .3H <sub>2</sub> O.....	330.65	.....	.....
26	" acid.....	KHCO <sub>3</sub> .....	100.16	2.17	
27	chlorate.....	KClO <sub>3</sub> .....	122.60	2.344 <sup>17°</sup>	370°
28	chloride.....	KCl.....	74.60	1.994 <sup>‡</sup>	740°–800°
29	chloraurate.....	KAuCl <sub>4</sub> .....	378.15	.....	.....
30	chlorochromate.....	KOCrCrO <sub>2</sub> .....	174.70	2.497	.....
31	chloroiridate.....	K <sub>2</sub> IrCl <sub>6</sub> .....	484.00	3.546	decomp.
32	chloropalladate.....	K <sub>2</sub> PdCl <sub>6</sub> .....	397.50	2.74–2.81	decomp.
33	chloropalladite.....	K <sub>2</sub> PdCl <sub>4</sub> .....	326.60	2.738	decomp.
34	chloroplatinate.....	K <sub>2</sub> PtCl <sub>6</sub> .....	485.80	3.586	decomp.
35	chloroplatinite.....	K <sub>2</sub> PtCl <sub>4</sub> .....	414.90	3.291 <sup>21°</sup>	.....
36	chlororhodite.....	K <sub>3</sub> RhCl <sub>6</sub> .3H <sub>2</sub> O.....	487.20	.....	decomp.
37	chlorostannate.....	K <sub>2</sub> SnCl <sub>6</sub> .....	410.00	2.687	.....
38	chromate.....	K <sub>2</sub> CrO <sub>4</sub> .....	194.40	2.721 <sup>4°</sup>	940°
39	citrate.....	K <sub>3</sub> C <sub>6</sub> H <sub>5</sub> O <sub>7</sub> .H <sub>2</sub> O.....	324.51	1.98	decomp.
40	cobalticyanide.....	K <sub>3</sub> Co(CN) <sub>6</sub> .....	332.69	1.906	.....
41	cobaltinitrite.....	2Co(NO <sub>2</sub> ) <sub>3</sub> .6KNO <sub>2</sub> . 3H <sub>2</sub> O	959.43	.....	dec. 200°

\* Decomposes at 200°.

† Anhydrous.

‡ Sublimes at white heat.



Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color,
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	400°	decomp.	.....	decomp. by alcohol.....	green.....
2	.....	insoluble	s. soluble	sol. warm KOH.....	crystals.....
3	58°	.....	52 <sup>100°</sup>	insoluble alcohol.....	octahedra.....
4	18.87	.....	v. soluble	4 alcohol.....	needles.....
5	.....	soluble	.....	.....	.....
6	196°	.....	v. soluble	insoluble alcohol.....	crystalline.....
7	.....	soluble	.....	s. soluble alcohol.....	.....
8	.....	soluble	.....	s. soluble alcohol.....	.....
9	.....	v. soluble	decomp.	soluble alcohol.....	.....
10*	.....	soluble	v. soluble	soluble alcohol.....	tablets. [hedra
11	14.3	.....	200	s. sol. al.; insol. ether.....	rhombic octa-
12	decomp.	.....	.....	.....	.....
13	.....	soluble	v. soluble	.....	monoclinic.....
14	.....	v. soluble	v. soluble	.....	hexag. prisms.
15	decomp.	1.42	6.25 <sup>100°</sup>	soluble alk.; insol. al.....	hexag. tablets.
16	.....	.....	.....	.....	.....
17	decomp.	3.1°	50 <sup>100°</sup>	insoluble alcohol.....	rhombohedral.
18†	53.48°	.....	102.04 <sup>100°</sup>	s. sol. alcohol, ether.....	regular.....
19	.....	s. soluble	.....	soluble alcohol.....	monoclinic.....
20	19.515°	.....	204 <sup>67°</sup>	sol. KBr; dec. by ether.....	.....
21	2.07 <sup>10°</sup>	.....	10 <sup>100°</sup>	.....	red regular.....
22	.....	v. soluble	v. soluble	.....	brown rhombic
23§	89.40°	.....	156 <sup>100°</sup>	insoluble alcohol.....	.....
24	112.6°	.....	.....	.....	rhombic.....
25	107.30°	.....	.....	.....	monoclinic.....
26	22.40°	.....	60 <sup>60°</sup>	insol. al.; sol. K <sub>2</sub> CO <sub>3</sub> aq.....	monoclinic.....
27¶	3.30°	.....	60 <sup>104.8°</sup>	0.833 alcohol; sol. alk.....	monoclinic.....
28	subl. w. h.	28.50°	56.6 <sup>100°</sup>	soluble alcohol, alkalies.....	regular.....
29	27.71°	.....	80.2 <sup>60°</sup>	soluble alcohol.....	yellow needles
30	.....	sol. and dec.	.....	soluble acids.....	red prisms.....
31	.....	s. soluble	6.67	insoluble al., KCl.....	black octahed.
32	.....	s. soluble	decomp.	s. sol. HCl; insol. al.....	red regular.....
33	.....	soluble	v. soluble	insol.al.; sol.KCl,NH <sub>3</sub> aq.....	yellow regular
34	0.74°	.....	5.18 <sup>100°</sup>	insol. al., ether.....	yellow regular
35	.....	s. soluble	v. soluble	insoluble alcohol.....	red tetrag.
36	.....	s. soluble	decomp.	insoluble alcohol.....	red triclinic...
37	.....	soluble	.....	.....	.....
38	61.50°	.....	81.8 <sup>106.1°</sup>	insoluble alcohol.....	yellow rhomb.
39	.....	soluble	.....	.....	.....
40	.....	v. soluble	.....	insoluble alcohol.....	yellow rhombic
41	.....	s. soluble	s. soluble	insoluble alcohol, ether.....	yel. tetragonal prisms

§ Decomposes at 810°. || Decomposes at 100°–200°. ¶ Decomposes at 400°.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
<b>Potassium</b>					
1	cobaltocyanide . . . . .	K <sub>3</sub> Co(CN) <sub>6</sub> . . . . .	371.84	2.2122 <sup>39</sup>	.....
2	cobaltosulphate . . . . .	K <sub>2</sub> SO <sub>4</sub> ·CoSO <sub>4</sub> ·6H <sub>2</sub> O . . . . .	437.52	2.2122 <sup>39</sup>	.....
3	cyanate . . . . .	KCNO . . . . .	81.19	2.048	fuses
4	cyanide . . . . .	KCN . . . . .	65.19	1.5216 <sup>o</sup>	red heat
5	dichromate . . . . .	K <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> . . . . .	294.50	2.6924 <sup>o</sup>	400°
6	ferricyanide . . . . .	K <sub>3</sub> Fe(CN) <sub>6</sub> . . . . .	329.59	1.810917 <sup>o</sup>	decomp.
7	ferric oxalate . . . . .	KFe(C <sub>2</sub> O <sub>4</sub> ) <sub>2</sub> ·2½H <sub>2</sub> O . . . . .	316.09	.....	decomp.
8	" " . . . . .	K <sub>2</sub> Fe(C <sub>2</sub> O <sub>4</sub> ) <sub>3</sub> ·3H <sub>2</sub> O . . . . .	491.40	.....	3H <sub>2</sub> O, 100
9	ferrocyanide . . . . .	K <sub>4</sub> Fe(CN) <sub>6</sub> ·3H <sub>2</sub> O . . . . .	422.79	1.853317 <sup>o</sup>	†
10	fluoride . . . . .	KF . . . . .	58.15	2.454	789°-885°
11	" . . . . .	KF·2H <sub>2</sub> O . . . . .	94.18	2.454	.....
12	" acid . . . . .	KHF <sub>2</sub> . . . . .	78.16	.....	decomp.
13	fluogermanate . . . . .	K <sub>2</sub> GeF <sub>6</sub> . . . . .	264.8	.....	.....
14	fluostannate . . . . .	K <sub>2</sub> SnF <sub>6</sub> ·H <sub>2</sub> O . . . . .	329.32	3.053	.....
15	fluosilicate . . . . .	K <sub>2</sub> SiF <sub>6</sub> . . . . .	220.70	2.665 <sup>17.5</sup> / <sub>4</sub>	‡
16	fluotitanate . . . . .	K <sub>2</sub> TiF <sub>6</sub> ·H <sub>2</sub> O . . . . .	258.42	.....	.....
17	fluozirconate . . . . .	K <sub>2</sub> ZrF <sub>6</sub> . . . . .	282.90	3.582	.....
18	formate . . . . .	KCHO <sub>2</sub> . . . . .	84.16	1.908	150°
19	hydride . . . . .	KH . . . . .	79.31	0.80	decomp.
20	hydrosulphide . . . . .	KSH . . . . .	72.22	.....	decomp.
21	hydroxide . . . . .	KOH . . . . .	56.16	2.044	red heat
22	hypochlorite . . . . .	KClO . . . . .	90.60	.....	decomp.
23	hypophosphite . . . . .	KH <sub>2</sub> PO <sub>2</sub> . . . . .	104.17	.....	burns . . . .
24	iodate . . . . .	KIO <sub>3</sub> . . . . .	214.12	3.97518 <sup>o</sup>	560°
25	" acid . . . . .	KH(IO <sub>3</sub> ) <sub>2</sub> . . . . .	390.10	.....	.....
26	iodide . . . . .	KI . . . . .	166.12	3.04324.3 <sup>o</sup>	614°-723°
27	" tri- . . . . .	KI <sub>3</sub> . . . . .	420.06	3.49815 <sup>o</sup>	45°
28	iodobromide . . . . .	KBr·IBr . . . . .	326.04	.....	decomp.
29	iodochloride . . . . .	KCl·ICl <sub>3</sub> . . . . .	307.92	1.17646 <sup>o</sup>	decomp.
30	iodoiridite . . . . .	K <sub>2</sub> Irl <sub>6</sub> . . . . .	1072.3	.....	.....
31	magnesium chloride (carnallite)	MgCl <sub>2</sub> ·KCl·6H <sub>2</sub> O . . . . .	277.96	1.618	.....
32	manganate . . . . .	K <sub>2</sub> MnO <sub>4</sub> . . . . .	197.30	.....	dec. 190°
33	molybdate . . . . .	K <sub>2</sub> MoO <sub>4</sub> . . . . .	238.30	.....	.....
34	nickel sulphate . . . . .	K <sub>2</sub> SO <sub>4</sub> ·NiSO <sub>4</sub> ·6H <sub>2</sub> O . . . . .	437.22	2.124	.....
35	nitrate . . . . .	KNO <sub>3</sub> . . . . .	101.19	2.14 <sup>o</sup>	336°-353°
36	nitride . . . . .	K <sub>3</sub> N . . . . .	131.49	.....	.....
37	nitrite . . . . .	KNO <sub>2</sub> . . . . .	85.19	.....	.....
38	nitroprusside . . . . .	K <sub>3</sub> Fe(CN) <sub>5</sub> ·NO·2H <sub>2</sub> O . . . . .	330.47	.....	.....
39	osmate . . . . .	K <sub>2</sub> OsO <sub>4</sub> ·2H <sub>2</sub> O . . . . .	369.33	.....	.....

\* Decomposes at 230°.

‡ Decomposes at red heat.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	soluble	.....	insoluble alcohol, ether.	amethyst need.
2	25.40°	.....	.....	108.449°	monoclinic pl...
3	.....	soluble	.....	insoluble alcohol	laminæ
4	red heat	v. soluble	122.2103.3°	s. soluble alcohol	octahedra[clinic
5	decomp.	4.90°	102100°	insoluble alcohol	red tri. or mono-
6	.....	334.5°	77.5100°	s. soluble alcohol	red monoclinic.
7	.....	9221°	decomp.	.....	olive br. cryst..
8*	4.70°	.....	117.7100°	insoluble alcohol	.....
9	27.812.2°	.....	90.696.3°	insoluble alcohol	yellow monocl..
10	v. soluble	v. soluble	v. soluble	insol. alcohol; sol. HF	.....
11	v. soluble	v. soluble	v. soluble	insol. alcohol; sol. HF	regular
12	v. soluble	.....	.....	insol. al.; sol. $KC_2H_3O_2$	regular
13	6.4518°	43.5100°	.....	.....	.....
14	3.718°	33.3100°	.....	.....	octahedra
15	0.1217.5°	0.955100°	.....	insol. al.; sol. HCl	hexagonal
16	0.5560°	1.2820°	.....	sol. HCl	.....
17	0.782°	25100°	.....	.....	rhombic
18	decomp.	soluble	.....	.....	rhombic
19	decomp.	decomp.	insol. benzine, ether, $CS_2$	.....	crystalline
20	soluble	soluble	v. soluble alcohol	.....	yel. rhombohed.
21	subl. w. h.	10715°	v. soluble	v. soluble alcohol, ether	rhombh. ( $2H_2O$ )
22	v. soluble	v. soluble	.....	.....	.....
23	v. soluble	.....	.....	sol. al.; insol. ether	hexagonal
24	4.740°	32.3100°	.....	insol. al.; sol. KI	regular...[clinic
25	1.3315°	.....	.....	.....	rhomb. or mono-
26	126.10°	205.6100.7°	14.28 al.; sol. ether	.....	regular
27	v. soluble	.....	sol. alcohol, KI	.....	dark blue need..
28	.....	.....	.....	.....	.....
29	decomp.	.....	decomp. by ether	.....	yellow rhombic.
30	v. soluble	.....	insoluble alcohol	.....	green crystals..
31	64.518.75°	decomp.	decomp. by alcohol	.....	hexagonal
32	decomp.	.....	sol. KOH	.....	dark gr. rhomb.
33	v. soluble	.....	insoluble alcohol	.....	.....
34	7.00°	60.875°	.....	.....	blue monoclinic
35	decomp.	13.30°	247100°	insoluble alcohol, ether	†
36	decomp.	.....	.....	.....	dark gray
37	soluble	.....	insol. alcohol	.....	prismatic
38	10016°	.....	soluble alcohol	.....	red monoclinic.
39	s. soluble	soluble	insoluble alcohol, ether	.....	violet octahedra

† Loses  $3H_2O$  at 60°–80°.

‡ Rhombohedral or prismatic.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Potassium osmocy- anide	$K_2Os(CN)_6 \cdot 3H_2O$	557.89		
2	oxalate	$K_2C_2O_4 \cdot H_2O$	184.32	2.08	decomp.
3	" acid	$KHC_2O_4 \cdot \frac{1}{2}H_2O$	137.17	2.088†	decomp.
4	" tetr-	$KH_3(C_2O_4)_2 \cdot 2H_2O$	254.21	1.836	decomp.
5	oxide	$K_2O$	94.30	2.656	red heat
6	" per-	$K_2O_4$	142.30		red heat
7	perchlorate	$KClO_4$	138.60	2.524 <sup>10.8</sup> <sub>4</sub>	610°
8	perchromate	$K_3CrO_8$	297.55		dec. 170°
9	periodate	$KIO_4$	230.12		582°
10	permanganate	$KMnO_4$	158.15	2.7032 <sup>9.9</sup> <sub>4</sub>	dec. 240°
11	persulphate	$K_2S_2O_8$	270.42		dec. < 100°
12	per-ruthenate	$KRuO_4$	204.85		dec. 440°
13	peruranate	$K_2UO_6 \cdot 3H_2O$	450.85		dec. 100°
14	phosphate ortho-	$K_3PO_4$	212.45		
15	" hydrogen	$K_2HPO_4$	174.31		decomp.
16	" dihydrogen	$KH_2PO_4$	136.17	2.338 <sup>9</sup>	96°
17	" pyro-	$K_4P_2O_7 \cdot 3H_2O$	384.65	2.33	3H <sub>2</sub> O, 300
18	" meta-	$K_4P_3O_{12} \cdot 2H_2O$	472.60	2.264 <sup>14.5°</sup>	2H <sub>2</sub> O, 100
19	phosphite	$K_2HPO_3$	158.31		decomp.
20	platinate	$K_2PtO_3 \cdot 3H_2O$	375.15		
21	platinocyanide	$K_2Pt(CN)_4 \cdot 3H_2O$	431.31	2.4548 <sup>16°</sup>	
22	platinonitrite	$K_2Pt(NO_2)_4$	457.26		
23	plumbate	$K_2PbO_3 \cdot 3H_2O$	387.25		
24	ruthenate	$K_2RuO_4 \cdot H_2O$	262.02		H <sub>2</sub> O, 200°
25	selenate	$K_2SeO_4$	221.50	3.066 <sup>9</sup>	
26	silicate	$K_2SiO_3$	154.70		
27	" tetra-	$K_2SiO_4$	335.90		
28	silver cyanide	$KAg(CN)_2$	199.16		
29	sodium carbonate	$KNaCO_3 \cdot 6H_2O$	230.30	1.61	6H <sub>2</sub> O, 100°
30	stannate	$K_2SnO_3 \cdot 3H_2O$	299.35	3.197	
31	sulphate	$K_2SO_4$	174.36	2.6633 <sup>9</sup>	1045-1074
32	" acid	$KHSO_4$	136.22	2.245	200°
33	" "	$KHSO_4$	136.22	2.612	
34	" pyro-	$K_2S_2O_7$	254.42	2.27	> 300°
35	sulphide mono-	$K_2S$	110.36	2.13	
36	" "	$K_2S \cdot 5H_2O$	200.44		3H <sub>2</sub> O, 150°
37	" di-	$K_2S_2$	142.42		
38	" tri-	$K_2S_3$	174.48		
39	" tetra-	$K_2S_4$	206.54		dec. 850°
40	" penta-	$K_2S_5$	238.60		

\* Decomposes at 411°.

† Density of the anhydrous salt.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (Al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	s. soluble	soluble	insoluble alcohol, ether.	yellowish plates
2	.....	33 <sup>18</sup> °	.....	.....	monoclinic.....
3	.....	2.20°	51.5 <sup>100</sup> °	.....	trimetric.....
4	.....	1.813°	.....	.....	triclinic.....
5	.....	v. soluble	v. soluble	soluble alcohol, ether.	gray.....
6	decomp.	decomp.	.....	decomp. by alcohol.	yellow leaflets..
7*	.....	0.70°	19.8 <sup>100</sup> °	s. sol. al.; insol. al., ether	rhombic.....
8	.....	s. soluble	.....	insol. al., ether.....	brown octahed.
9	O, 300°	0.35	soluble	s. soluble KOH.....	rhombic.....
10	.....	2.95°	16.75 <sup>50</sup> °	sol. conc. H <sub>2</sub> SO <sub>4</sub> .....	dark red rhomb.
11	.....	0.564°	4.08 <sup>40</sup> °	insoluble alcohol.....	prismatic.....
12	.....	s. soluble	.....	.....	black quadratic.
13	.....	decomp.	decomp.	decomp. HCl.....	red crystals.....
14	.....	s. soluble	soluble	insoluble alcohol.....	rhombic.....
15	.....	v. soluble	v. soluble	v. soluble alcohol.....	.....
16	H <sub>2</sub> O, 400°	v. soluble	insoluble alcohol.....	insoluble alcohol.....	tetragonal.....
17	.....	soluble	v. soluble	insoluble alcohol.....	.....
18	.....	s. soluble	.....	soluble acids.....	amorphous.....
19	.....	v. soluble	.....	insoluble alcohol.....	.....
20	.....	soluble	.....	insoluble alcohol.....	yel. rhombohed.
21	.....	s. soluble	v. soluble	soluble alcohol, ether	yellow rhombic.
22	.....	3.8 <sup>15</sup> °	soluble	.....	monocl. prisms.
23	.....	decomp.	decomp.	soluble KOH.....	rhombohedral..
24	.....	v. soluble	.....	.....	black rhombic.
25	.....	110.5°	122.2 <sup>100</sup> °	.....	.....
26	.....	soluble	.....	insoluble alcohol.....	.....
27	.....	soluble	soluble	insoluble alcohol.....	amorphous.....
28	.....	25 <sup>20</sup> °	100	4, alcohol.....	regular.....
29	.....	13 <sup>12</sup> °	20 <sup>15</sup> °	.....	monoclinic.....
30	.....	106.6 <sup>100</sup> °	110.5 <sup>20</sup> °	insol. al.; s. sol. KOH..	rhombohedral..
31	.....	8.5°	26.2 <sup>100</sup> °	insoluble alcohol.....	rhom. or hexag.
32	decomp.	36.3°	121.6 <sup>100</sup> °	decomp. by alcohol.....	monoclinic.....
33	.....	.....	.....	.....	rhombic.....
34	.....	soluble	decomp.	.....	.....
35	.....	soluble	v. soluble	sol. al., glyc.; insol. ether	brown crystals.
36	.....	soluble	.....	sol. al., glyc.; insol. ether	orthorhombic..
37	.....	soluble	decomp.	soluble alcohol.....	yellowish red..
38	.....	soluble	decomp.	soluble alcohol.....	yellowish browr
39	.....	soluble	.....	soluble alcohol.....	red brown
40	.....	v. soluble	v. soluble	v. soluble alcohol.....	[crystals

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Potassium sulphite ..	K <sub>2</sub> SO <sub>3</sub> .2H <sub>2</sub> O .....	194.39	.....	decomp.
2	“ acid.....	KHSO <sub>3</sub> .....	120.22	.....	decomp.
3	sulphocyanate ....	KCNS.....	97.25	1.906	161.2°
4	tartrate.....	K <sub>2</sub> C <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .½H <sub>2</sub> O.....	235.34	1.975	.....
5	“ acid.....	KH, C <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .....	188.19	1.956	.....
6	tellurate.....	K <sub>2</sub> TeO <sub>6</sub> .5H <sub>2</sub> O.....	359.98	.....	.....
7	tellurite.....	K <sub>2</sub> TeO <sub>3</sub> .....	253.90	.....	red heat
8	thioantimonate.....	2K <sub>2</sub> SbS <sub>4</sub> .9H <sub>2</sub> O.....	893.92	.....	.....
9	thioarsenate.....	K <sub>2</sub> AsS <sub>4</sub> .....	320.69	.....	decomp.
10	thioarsenite.....	K <sub>3</sub> AsS <sub>3</sub> .....	288.63	.....	decomp.
11	thiocarbonate.....	K <sub>2</sub> CS <sub>3</sub> .....	186.48	.....	.....
12	thionate di-.....	K <sub>2</sub> S <sub>2</sub> O <sub>6</sub> .....	238.42	2.278 <sup>‡</sup>	decomp.
13	“ tri-.....	K <sub>2</sub> S <sub>3</sub> O <sub>6</sub> .....	270.48	2.304 <sup>‡</sup>	.....
14	“ tetra-.....	K <sub>2</sub> S <sub>4</sub> O <sub>6</sub> .....	302.54	2.2963 <sup>‡</sup>	.....
15	“ penta-.....	2K <sub>2</sub> S <sub>5</sub> O <sub>6</sub> .3H <sub>2</sub> O.....	723.25	2.1123 <sup>‡</sup>	decomp.
16	thioplattinate.....	K <sub>2</sub> Pt <sub>2</sub> S <sub>6</sub> .....	1049.9	6.44 <sup>15°</sup>	burns
17	thiostannate.....	K <sub>2</sub> SnS <sub>3</sub> .10H <sub>2</sub> O.....	473.64	.....	10H <sub>2</sub> O, 100
18	thiosulphate.....	3K <sub>2</sub> S <sub>2</sub> O <sub>3</sub> .H <sub>2</sub> O.....	589.28	*2.590	H <sub>2</sub> O, 180°
19	tungstate ortho-.....	K <sub>2</sub> WO <sub>4</sub> .2H <sub>2</sub> O.....	362.33	.....	red heat
20	“ meta-.....	K <sub>2</sub> W <sub>4</sub> O <sub>13</sub> .8H <sub>2</sub> O.....	1166.4	.....	.....
21	“ para-.....	K <sub>6</sub> W <sub>7</sub> O <sub>24</sub> .6H <sub>2</sub> O.....	2015.0	.....	decomp.
22	uranate.....	K <sub>2</sub> UO <sub>4</sub> .....	380.80	.....	.....
23	xanthogenate.....	KS <sub>2</sub> COC <sub>2</sub> H <sub>5</sub> .....	160.31	1.5576 <sup>21.5°</sup>	dec. > 200
24	Praseodymium.....	Pr.....	140.5	6.4754	940°
25	carbide.....	PrC <sub>2</sub> .....	164.5	5.10	decomp.
26	chloride.....	PrCl <sub>3</sub> .....	246.85	4.017 <sup>‡</sup>	818°
27	“.....	PrCl <sub>3</sub> .7H <sub>2</sub> O.....	372.96	2.25116.2°	.....
28	oxalate.....	Pr <sub>2</sub> (C <sub>2</sub> O <sub>4</sub> ) <sub>3</sub> .10H <sub>2</sub> O.....	725.16	.....	.....
29	potassium sulphate	Pr <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .3K <sub>2</sub> SO <sub>4</sub> . H <sub>2</sub> O.....	1146.3	3.27516°	.....
30	sulphide.....	Pr <sub>2</sub> S <sub>3</sub> .....	377.18	5.04211°	decomp.
31	Radium.....	Ra.....	225	.....	.....
32	bromide.....	RaBr <sub>2</sub> .....	384.92	.....	.....
33	chloride.....	RaCl <sub>2</sub> .....	295.5	.....	1650°
34	Rhodium.....	Rh.....	103.0	12.1	2000°
35	chloride.....	RhCl <sub>3</sub> .....	209.35	.....	†
36	“.....	RhCl <sub>3</sub> .4H <sub>2</sub> O.....	281.41	.....	.....
37	hydrosulphide.....	Rh(SH) <sub>3</sub> .....	202.20	.....	.....
38	hydroxide tetra-.....	Rh(OH) <sub>4</sub> .....	171.03	.....	.....
39	“ sesqui-.....	Rh(OH) <sub>3</sub> .....	154.02	.....	decomp.

\* Anhydrous.

† Decomposes at 450° to 500°.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	100		v. soluble	s. soluble alcohol	monoclinic
2	soluble		soluble	insoluble alcohol	needles
3	177.20°		217.20°	soluble alcohol, acetone	prisms
4	133.2°		158.23°	s. soluble alcohol	monoclinic
5	0.37°		6.1100°	insol. al., $\text{H}_2\text{C}_2\text{H}_3\text{O}_2$ ; sol. a., alk.	rhombic
6	s. soluble		soluble	insol. al.; s. sol. KOH	rhomb. prisms
7	s. soluble		soluble		
8	soluble			insoluble alcohol	yellow crystals
9	v. soluble			insoluble alcohol	crystalline
10	soluble			insoluble alcohol	
11	v. soluble			s. soluble alcohol	red br. crystals
12	6		66.100°	insoluble alcohol	hexagonal
13	v. soluble		decomp.	insoluble alcohol	rhombic needles
14	v. soluble			insoluble alcohol	hexag. prisms
15	50		decomp.	insoluble alcohol	rhombic plates
16	insoluble			decomp. by HCl	blue gray crys.
17	soluble			insoluble alcohol	dark brown oil
18	decomp.	v. soluble	v. soluble	insoluble alcohol	monoclinic
19	51.5		151.5	insoluble alcohol	triclinic needles
20	soluble		v. soluble		octahedra
21	2.15		6.6	insoluble alcohol	rhombic[ rhomb.
22	insoluble		insoluble	v. soluble acids	orange yellow
23	200°	v. soluble		20 alcohol; insol. ether	prisms
24	decomp.				yellow
25	decomp.	decomp.	decomp.	sol. dil. a., conc. $\text{H}_2\text{SO}_4$	yellow crystals
26	v. soluble	v. soluble	v. soluble	soluble alcohol	green
27				soluble HCl	
28	insoluble			sol. conc. acids	crystalline
29	s. soluble			sol. $\text{HNO}_3$ , HCl	crystalline
30	insoluble		decomp.	soluble dil. acids	brown
31					
32	soluble		soluble	soluble alcohol	
33	insoluble				yellowish reg.
34	insoluble		insoluble	s. sol. a., aqua regia	grayish white
35	insoluble			insoluble acids	red
36	v. soluble			sol. al., HCl; insol. ether	dark red
37	insoluble		decomp.	insol. a., $\text{Na}_2\text{S}$ ; sol. aq. r.	brownish black
38	insoluble			soluble HCl	green
39	insoluble			soluble acids, KOH	black gelatinous

Number.	Name.	Formula.	Molec- ular. Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	<b>Rhodium nitrate</b> ....	Rh(NO <sub>3</sub> ) <sub>3</sub> .2H <sub>2</sub> O.....	325.15		
2	oxide mon-.....	RhO.....	119.00		
3	“ sesqui-.....	Rh <sub>2</sub> O <sub>3</sub> .....	254.00		
4	“ di-.....	RhO <sub>2</sub> .....	135.00		
5	sulphate.....	Rh <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .12H <sub>2</sub> O.....	710.37		
6	sulphide mono-.....	RhS.....	135.06		decomp.
7	“ sesqui-.....	Rh <sub>2</sub> S <sub>3</sub> .....	302.18		
8	sulphite.....	Rh <sub>2</sub> (SO <sub>3</sub> ) <sub>3</sub> .6H <sub>2</sub> O.....	554.28		
9	<b>Rubidium</b> .....	Rb.....	85.5	1.522 <sup>15°</sup>	38.5°
10	bromide.....	RbBr.....	165.46	3.210 <sup>23°</sup>	683°
11	carbonate.....	Rb <sub>2</sub> CO <sub>3</sub> .....	231.00		837°
12	chlorate.....	RbClO <sub>3</sub> .....	168.95		
13	chloride.....	RbCl.....	120.95	2.706 <sup>23°</sup>	710°
14	chloroplatinate.....	Rb <sub>2</sub> PtCl <sub>6</sub> .....	578.50	3.9417.5°	
15	chromate.....	Rb <sub>2</sub> CrO <sub>4</sub> .....	287.10		
16	dichromate.....	Rb <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> .....	387.20		
17	fluoride.....	RbF.....	104.50	3.20216.5°	753°
18	fluosilicate.....	Rb <sub>2</sub> SiF <sub>6</sub> .....	313.40	3.338 <sup>20°</sup>	
19	hydride.....	RbH.....	86.51	2	decomp.
20	hydroxide.....	RbOH.....	102.51		> red heat
21	iodide.....	RbI.....	212.47	3.428 <sup>24°</sup>	642°
22	nitrate.....	RbNO <sub>3</sub> .....	147.54	3.131 <sup>15°</sup>	
23	penta sulphide.....	Rb <sub>2</sub> S <sub>5</sub> .....	160.30	2.618 <sup>15°</sup>	223°–224°
24	perchlorate.....	RbClO <sub>4</sub> .....	184.95		fusible
25	permanganate.....	RbMnO <sub>4</sub> .....	204.50	3.235 <sup>10.4°</sup>	
26	sulphate.....	Rb <sub>2</sub> SO <sub>4</sub> .....	267.06	3.6113	
27	sulphide.....	Rb <sub>2</sub> S.4H <sub>2</sub> O.....	275.12		
28	tartrate acid.....	RbHC <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .....	234.54	2.399	decomp.
29	<b>Ruthenium</b> .....	Ru.....	101.7	8.6	>1950°
30	“.....	Ru.....	101.7	11.4	2000°+
31	“.....	Ru.....	101.7	12.263	2000°+
32	chloride di-.....	RuCl <sub>2</sub> .....	172.60		
33	“ tri-.....	RuCl <sub>3</sub> .....	208.05		
34	“ tetra-.....	RuCl <sub>4</sub> .....	243.50		
35	hydroxide (sesqui). ..	Ru(OH) <sub>3</sub> .....	192.82		
36	oxide sesqui-.....	Ru <sub>2</sub> O <sub>3</sub> .....	331.60		
37	“ di-.....	RuO <sub>2</sub> .....	173.80	7.2	
38	“ penta-.....	Ru <sub>2</sub> O <sub>5</sub> .....	363.60		10, 360°
39	“ non-.....	Ru <sub>4</sub> O <sub>9</sub> .....	711.20		0, 440°

\* Decomposes at 740°.



Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1		soluble	soluble	insoluble alcohol.	red.
2		insoluble	insoluble	insoluble acids.	gray.
3		insoluble	insoluble	insol. acids, KOH	gray crystals.
4		insoluble	insoluble	insol. acids, KOH	brown.
5		v. soluble	decomp.	insoluble alcohol.	pale yel. cryst.
6		insoluble	insoluble	insol. acids, aqua regia.	bluish.
7		insoluble	insoluble	insoluble.	black tablets.
8		soluble		insoluble alcohol.	yellow crystals
9	696°	decomp.	decomp.	soluble acids, alcohol.	soft white.
10		98 <sup>50</sup>	104.8 <sup>16</sup>		regular.
11	*	soluble	soluble	soluble alcohol.	
12		2.84 <sup>70</sup>	5.1 <sup>190</sup>		trimetric.
13		76.38 <sup>10</sup>	82.89 <sup>70</sup>	soluble alcohol.	regular.
14		0.184 <sup>40</sup>	0.634 <sup>100</sup>	insoluble alcohol.	yellow regular.
15		62 <sup>0</sup>	95.7 <sup>80</sup>		yellow rhombic
16		soluble			tricl. or monocl.
17		soluble		insoluble al., ether.	
18		0.16 <sup>20</sup>	1.35 <sup>100</sup>	insoluble alcohol; sol. a.	regular.
19		decomp.	decomp.	decomp. acids.	prismatic need.
20		198 <sup>30</sup>	v. soluble	soluble alcohol.	gray.
21		137.56 <sup>90</sup>	152 <sup>17.40</sup>		reg. octahed.
22		20.1 <sup>0</sup>	43.5 <sup>10</sup>	v. soluble HNO <sub>3</sub> .	reg. or hexag.
23		decomp.			prisms
24	decomp.	1.09 <sup>21.30</sup>		soluble alcohol.	red rhombic.
25		0.46 <sup>0</sup>	4.68 <sup>80</sup>	insoluble alcohol.	rhombic.
26		26.58 <sup>0</sup>	44.37 <sup>100</sup>		crystalline.
27		v. soluble	v. soluble		hexagonal.
28		1.18 <sup>250</sup>	11.7 <sup>1000</sup>		crystals.
29		insoluble	insoluble	s. sol. a., aqua regia.	trimet. prisms.
30		insoluble	insoluble		black porous.
31		insoluble	insoluble		melted.
32		insoluble	insoluble	insol. acids, alkalies.	grayish cryst.
33		soluble	decomp.	s. sol. al.; insol. a., CS <sub>2</sub> .	black cryst.
34		soluble		soluble alcohol.	brown cryst.
35				sol. a. NH <sub>3</sub> aq.; insol. NaOH	black powder.
36		insoluble		insoluble acids.	blue black.
37		insoluble		insol. a.; sol. fused KOH	dark violet reg.
38				soluble HCl.	black cryst.
39					black cryst.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
<b>Ruthenium</b>					
1	oxide tetr-.....	RuO <sub>4</sub> .....	165.70	5.7	50°
2	silicide.....	RuSi.....	130.1	5.40 <sup>40</sup>	.....
3	<b>Samarium</b> .....	Sm.....	150.3	7.7-7.8	.....
4	bromide.....	SmBr <sub>3</sub> .6H <sub>2</sub> O.....	498.28	2.97 <sup>220</sup>	.....
5	carbide.....	SmC <sub>2</sub> .....	174.3	5.86	.....
6	chloride.....	SmCl <sub>3</sub> .....	208.05	4.465 <sup>19</sup>	686°
7	".....	SmCl <sub>3</sub> .3H <sub>2</sub> O.....	310.70	2.392 <sup>150</sup>	.....
8	fluoride.....	SmF <sub>3</sub> . $\frac{1}{2}$ H <sub>2</sub> O.....	216.31	.....	.....
9	hydroxide.....	Sm <sub>2</sub> (OH) <sub>6</sub> .....	402.65	.....	.....
10	nitrate.....	Sm(NO <sub>3</sub> ) <sub>3</sub> .6H <sub>2</sub> O.....	444.52	2.375	.....
11	oxide.....	Sm <sub>2</sub> O <sub>3</sub> .....	348.60	8.347	.....
12	peroxide.....	Sm <sub>4</sub> O <sub>9</sub> .....	745.20	.....	.....
13	sulphate.....	Sm <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .8H <sub>2</sub> O.....	732.91	2.930	8H <sub>2</sub> O, 450
14	<b>Scandium</b> .....	Sc.....	44.1	.....	.....
15	oxide.....	Sc <sub>2</sub> O <sub>3</sub> .....	136.2	3.864	.....
16	sulphate.....	Sc <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	376.38	2.579	.....
17	<b>Selenium</b> .....	Se.....	633.6	4.26-4.28 <sup>250</sup>	softens 50°
18	".....	Se <sub>8</sub> .....	633.6	4.47 <sup>250</sup>	170°-180°
19	".....	Se <sub>8</sub> .....	633.6	4.8 <sup>250</sup>	217°
20	bromide mono-.....	SeBr <sub>2</sub> .....	318.32	3.604 <sup>150</sup>	.....
21	" tetra-.....	SeBr <sub>4</sub> .....	399.04	.....	dec. 75°
22	bromochloride tri-.....	SeBr <sub>3</sub> Cl.....	354.53	.....	decomp.
23	bromtrichloride.....	SeBrCl <sub>3</sub> .....	265.51	.....	dec. 190°
24	chloride mono-.....	SeCl <sub>2</sub> .....	229.30	2.906 <sup>17.50</sup>	.....
25	" tetra-.....	SeCl <sub>4</sub> .....	221.00	.....	sublimes
26	iodide mono-.....	Se <sub>2</sub> I <sub>2</sub> .....	412.34	.....	68°-70°
27	" tetra-.....	SeI <sub>4</sub> .....	587.08	.....	75°-80°
28	oxide di-.....	SeO <sub>2</sub> .....	111.20	3.9518 <sup><math>\frac{15.3}{15.8}</math></sup>	†
29	oxychloride.....	SeOCl <sub>2</sub> .....	166.10	2.44	10°
30	nitride.....	Se <sub>2</sub> N <sub>2</sub> .....	186.48	.....	exp. 200°
31	sulphide.....	SeS.....	111.26	3.056 <sup>00</sup>	decomp.
32	sulphoxide.....	SeSO <sub>3</sub> .....	159.26	.....	dec. 40°
33	sulphoxytetra- chloride.....	SeSO <sub>3</sub> Cl <sub>4</sub> .....	301.06	.....	165°
34	<b>Selenic acid</b> .....	H <sub>2</sub> SeO <sub>4</sub> .....	145.22	2.9508 <sup>150</sup>	58°
35	" ".....	H <sub>2</sub> SeO <sub>4</sub> .H <sub>2</sub> O.....	163.24	2.6273 <sup>150</sup>	25°
36	<b>Selenious acid</b> .....	H <sub>2</sub> SeO <sub>3</sub> .....	129.22	3.0066 <sup>15.70</sup>	decomp.
37	<b>Silicic acid meta</b> .....	H <sub>2</sub> SiO <sub>3</sub> .....	78.42	1.813 <sup>170</sup>	.....
38	" " ortho-.....	H <sub>4</sub> SiO <sub>4</sub> .....	96.43	1.576 <sup>1700</sup>	.....
39	<b>Silicobromoform</b> .....	SiHBr <sub>3</sub> .....	269.29	2.7	> -60°

\* Decomposes at 106°.

† Loses 3SO<sub>2</sub> at 1050°.

Number.	Boiling Point, °C.	Solubility 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1*		s. soluble	.....	soluble alkalies.....	yellow rhombic.
2		insoluble	insoluble.	soluble $\text{HNO}_3 + \text{HF}$ ...	metallic prisms.
3					
4		deliques.			
5		decomp.	decomp.	soluble acids.....	yellow hexag...
6					green yel. cryst.
7		deliques.			green.....
8		insoluble		insoluble acids.....	
9		insoluble		sol. a.; insol. alkalies...	
10		v. soluble			pale yel. prisms
11				v. soluble in acids.....	
12		insoluble			
13†		s. soluble			
14					
15		insoluble		soluble hot conc. acids.	white powder..
16					
17 690°		insoluble	insoluble	sol. $\text{CS}_2$ , conc. $\text{H}_2\text{SO}_4$ ...	red powder....
18 690°		insoluble	insoluble	sol. $\text{CS}_2$ , conc. $\text{H}_2\text{SO}_4$ ...	red monoclinic.
19 690°		insoluble	insoluble	insol. $\text{CS}_2$ ; sol. conc. $\text{H}_2\text{SO}_4$	steel-gray hex..
20 225°-230°		insoluble	decomp.	sol. $\text{CS}_2$ , $\text{CHCl}_3$ , Et. Br.	bright red liquid
21		decomp.		sol. $\text{CS}_2$ , $\text{CHCl}_3$ , Et. Br.	orange crystals
22				s. soluble $\text{CS}_2$ .....	orange crystals.
23				insoluble $\text{CS}_2$ .....	yel.-brown crys.
24 145°		decomposes		v. sol. $\text{CS}_2$ , $\text{CHCl}_3$ , $\text{CCl}_4$	red liquid.....
25		decomposes		s. sol. $\text{CS}_2$ ; Sol. $\text{POCl}_3$ ..	yel. crystalline.
26†		decomp.	decomp.		steel gray cryst.
27 $\text{I}_2$ , 100°		decomp.	decomp.	..... [tone	dark gray cryst.
28		38.4 <sup>14</sup> °	v. soluble	v. sol. al., $\text{HC}_2\text{H}_3\text{O}_2$ , ace-	tetrag. needles.
29 179.5°		decomp.			yellowish liquid.
30		insoluble	insoluble	insol. al.; s. sol. $\text{CS}_2$ ...	orange yellow..
31		insoluble	insoluble	sol. $\text{CS}_2$ ; insol. ether...	or. yel. tablets..
32		decomposes		sol. conc. $\text{H}_2\text{SO}_4$ .....	green prisms...
33 183°		decomposes			white needles..
34 260°		v. soluble		sol. conc. $\text{H}_2\text{SO}_4$ ; dec. al.	hexag. prisms..
35		v. soluble			needles.....
36		v. soluble	v. soluble	v. soluble alcohol.....	crystals.....
37		insoluble		sol. alk.; insol. $\text{NH}_4\text{Cl}$	amorphous....
38		s. soluble		sol. alk.; insol. $\text{NH}_4\text{Cl}$	amorphous....
39 109°-110°		decomposes			

† Decomposes at 100°.

‡ Sublimes at 250° to 280°.

Number.	Name.	Formula.	Molec- ular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Silicochloroform . . . . .	SiHCl <sub>3</sub> . . . . .	135.76	1.65	-1.34°
2	Silicofluoform . . . . .	SiHF <sub>3</sub> . . . . .	86.41	2.98 <sup>00</sup> D	-110°
3	Silicoiodoform . . . . .	SiHI <sub>3</sub> . . . . .	410.32	3.314 <sup>200</sup>	.....
4	Silicon cryst. . . . .	Si . . . . .	28.4	2.49 <sup>100</sup>	1200°
5	graphitic . . . . .	Si . . . . .	28.4	2.00-2.50	.....
6	amorphous . . . . .	Si . . . . .	28.4	2.00	.....
7	boride tri- . . . . .	SiB <sub>3</sub> . . . . .	61.4	2.52	.....
8	" hexa- . . . . .	SiB <sub>6</sub> . . . . .	94.4	2.47	.....
9	bromide tri- . . . . .	SiBr <sub>3</sub> . . . . .	268.28	.....	.....
10	" tetra- . . . . .	SiBr <sub>4</sub> . . . . .	348.24	2.8128 <sup>3</sup>	5°
11	bromotrichloride . . . . .	SiBr <sub>2</sub> Cl <sub>2</sub> . . . . .	214.71	.....	.....
12	dibromdichloride . . . . .	SiBr <sub>2</sub> Cl <sub>2</sub> . . . . .	259.22	.....	> -60°
13	tribromchloride . . . . .	SiBr <sub>3</sub> Cl . . . . .	303.73	2.432	> -39°
14	carbide . . . . .	SiC . . . . .	40.40	3.12 <sup>150</sup>	.....
15	chloride tri- . . . . .	SiCl <sub>3</sub> . . . . .	134.75	1.58 <sup>00</sup>	-1°
16	" tetra- . . . . .	SiCl <sub>4</sub> . . . . .	170.20	1.524 <sup>1</sup>	-89°
17	chlorohydrosulphide . . . . .	SiCl <sub>3</sub> SH . . . . .	167.82	1.45	.....
18	fluoride . . . . .	SiF <sub>4</sub> . . . . .	104.40	3.57 A.	-77°
19	hydride . . . . .	SiH <sub>4</sub> . . . . .	32.43	.....	.....
20	" . . . . .	Si <sub>2</sub> H <sub>6</sub> . . . . .	62.85	2.37 D.	-138°
21	iodide di- . . . . .	SiI <sub>2</sub> . . . . .	282.34	.....	.....
22	" hexa- . . . . .	SiI <sub>6</sub> . . . . .	818.62	.....	250°(vac.)
23	" tetra- . . . . .	SiI <sub>4</sub> . . . . .	536.28	18.56 A.	120.5°
24	iodotrichloride . . . . .	SiICl <sub>3</sub> . . . . .	261.72	.....	.....
25	oxide di-amorph . . . . .	SiO <sub>2</sub> . . . . .	60.40	2.20 <sup>15.60</sup>	white heat
26	" " cryst. . . . .	SiO <sub>2</sub> . . . . .	60.40	2.65	" "
27	oxychloride . . . . .	Si <sub>2</sub> OCl <sub>6</sub> . . . . .	301.50	10.05 D	.....
28	sulphide . . . . .	SiS <sub>2</sub> . . . . .	92.52	.....	.....
29	sulphobromide . . . . .	SiSBr <sub>2</sub> . . . . .	220.38	.....	93°
30	sulphochloride . . . . .	SiSCl <sub>2</sub> . . . . .	70.90	.....	75°
31	Silver . . . . .	Ag . . . . .	107.93	10.53	961.5°
32	" . . . . .	Ag . . . . .	107.93	.....	955° in air
33	acetate . . . . .	AgC <sub>2</sub> H <sub>3</sub> O <sub>2</sub> . . . . .	166.95	3.259	decomp.
34	arsenate . . . . .	Ag <sub>3</sub> AsO <sub>4</sub> . . . . .	462.79	.....	fusible
35	arsenite . . . . .	Ag <sub>3</sub> AsO <sub>3</sub> . . . . .	446.79	.....	decomp.
36	bromate . . . . .	AgBrO <sub>3</sub> . . . . .	235.89	5.206	decomp.

\* At 181 cm.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	34°	decomposes	.....	sol. CS <sub>2</sub> , CHCl <sub>3</sub> , CCl <sub>4</sub> ...	.....
2	-80.2°	decomposes	.....	dec. alk., al., ether; sol. toluol.	.....
3	220°	decomposes	.....	sol. CS <sub>2</sub> .....	liquid.....
4	3500°	insoluble	insoluble	insol. HF; sol. HNO <sub>3</sub> + HF	gray octahed..
5	3500°	insoluble	insoluble	insol. HF; sol. HNO <sub>3</sub> + HF, fused KOH.....	crystalline....
6	3500°	insoluble	insoluble	sol. HF, KOH.....	brown amorph.
7	.....	insoluble	.....	{ s. sol. hot conc. H <sub>2</sub> SO <sub>4</sub> , conc. HNO <sub>3</sub>	black rhombic
8	.....	insoluble	.....	{	black crystals.
9	240°	decomposes	.....	decomp. by KOH.....	rhombic.....
10	153°	decomposes	decomp.	decomp. by H <sub>2</sub> SO <sub>4</sub> .....	.....
11	80°	decomposes	.....	.....	.....
12	103°-105°	decomposes	.....	.....	.....
13	126°-128°	decomposes	.....	.....	.....
14	.....	insoluble	insoluble	insoluble acids.....	rhombic plates
15	144°-148°	decomposes	decomposes	decomp. by alkalies.....	leaflets.....
16	59.6°	decomposes	.....	decomp. by alcohol.....	yellow.....
17	96°	decomposes	.....	decomp. by alcohol.....	.....
18	-65° *	decomposes	.....	sol. al., ether, HNO <sub>3</sub> .....	gas.....
19	-115.5°	insoluble	.....	decomp. by KOH.....	.....
20	52°	decomposes	.....	.....	liquid.....
21	.....	decomposes	.....	insol., CS <sub>2</sub> , CHCl <sub>3</sub> , C <sub>6</sub> H <sub>6</sub> .....	.....
22	decomp.	decomposes	decomposes	19, CS <sub>2</sub> .....	hexag. plates.
23	290°	decomposes	.....	220, CS <sub>2</sub> .....	reg. octahedra.
24	113°-114°	decomposes	.....	.....	.....
25	.....	insoluble	.....	sol. hot. alk., HF.....	amorphous...
26	.....	insoluble	.....	insol. alk.; sol. HF.....	hexag. prisms.
27	136°-139°	decomposes	.....	sol. CS <sub>2</sub> , CHCl <sub>3</sub> , CCl <sub>4</sub> , ether	.....
28	white heat	decomposes	.....	sol. dil. alk.; dec. by al.	needles.....
29	150°	decomposes	decomposes	soluble CS <sub>2</sub> .....	plates.....
30	92° †	decomposes	decomposes	soluble CS <sub>2</sub> .....	prisms.....
31	2050°	insoluble	insoluble	{ sol. HNO <sub>3</sub> , hot conc. H <sub>2</sub> SO <sub>4</sub> ; insol. alk.	.....
32	2050°	.....	.....	.....	.....
33	.....	1.0214°	soluble	.....	laminæ.....
34	.....	insoluble	.....	sol. H.C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> , NH <sub>3</sub> aq. NH <sub>4</sub> salts	dark red.....
35	.....	insoluble	insoluble	sol. H.C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> , NH <sub>3</sub> aq. NH <sub>4</sub> salts	yellow.....
36	.....	0.15820°	.....	sol. NH <sub>3</sub> aq.; s. sol. HNO <sub>3</sub>	tetragonal....

† At 22.5 mm.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Silver bromide.....	AgBr.....	187.89	6.473 <sup>42</sup>	427°
2	carbonate.....	Ag <sub>2</sub> CO <sub>3</sub> .....	275.86	6.017.5°	dec. 200°
3	chlorate.....	AgClO <sub>3</sub> .....	191.38	4.401 <sup>23°</sup>	230°
4	chloride.....	AgCl.....	143.38	5.561	451°-460°
5	chromate.....	Ag <sub>2</sub> CrO <sub>4</sub> .....	331.96	5.523	.....
6	citrate.....	AgC <sub>6</sub> H <sub>5</sub> O <sub>7</sub> .....	296.97	.....	decomp.
7	cyanate.....	AgCNO.....	149.97	4.0	decomp.
8	cyanide.....	AgCN.....	133.97	3.95	decomp.
9	dichromate.....	Ag <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> .....	432.06	.....	decomp.
10	ferricyanide.....	Ag <sub>3</sub> FeCy <sub>6</sub> .....	535.93	.....	.....
11	ferrocyanide.....	Ag <sub>3</sub> FeCy <sub>6</sub> .H <sub>2</sub> O.....	661.88	.....	.....
12	fluoride.....	AgF.....	126.93	5.852 <sup>15.5°</sup>	435°
13	fluosilicate.....	Ag <sub>2</sub> SiF <sub>6</sub> .2H <sub>2</sub> O.....	394.29	.....	< 100°
14	iodate.....	AgIO <sub>3</sub> .....	282.90	5.4-5.65	decomp.
15	iodide.....	AgI.....	234.90	5.675 <sup>42</sup>	526°-556°
16	nitrate.....	AgNO <sub>3</sub> .....	169.97	4.352 <sup>19°</sup>	218°
17	nitrite.....	AgNO <sub>2</sub> .....	153.97	.....	.....
18	nitroprusside.....	Ag <sub>2</sub> Fe(CN) <sub>5</sub> NO.....	672.00	.....	.....
19	oxalate.....	Ag <sub>2</sub> C <sub>2</sub> O <sub>4</sub> .....	303.86	5.029 <sup>4°</sup>	decomp.
20	oxide.....	Ag <sub>2</sub> O.....	231.86	7.521	0,300-340
21	oxide per.....	AgO.....	123.93	5.474	dec. > 100°
22	perchlorate.....	AgClO <sub>4</sub> .....	207.38	.....	486°
23	permanganate.....	AgMnO <sub>4</sub> .....	225.93	.....	decomp.
24	phosphate ortho.....	Ag <sub>3</sub> PO <sub>4</sub> .....	418.79	7.321	849°
25	“ pyro.....	Ag <sub>4</sub> P <sub>2</sub> O <sub>7</sub> .....	605.72	5.306 <sup>7.5°</sup>	585°
26	potassium cyanide.....	KAg(CN) <sub>2</sub> .....	199.16	.....	.....
27	selenide.....	Ag <sub>2</sub> Se.....	295.06	8.0	red heat
28	sulphate.....	Ag <sub>2</sub> SO <sub>4</sub> .....	311.92	5.40	654°-676°
29	sulphide.....	Ag <sub>2</sub> S.....	247.92	6.85-7.32	oxidizes
30	sulphite.....	Ag <sub>2</sub> SO <sub>3</sub> .....	295.92	.....	dec. 100°

\* Decomposes at 700°.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1 *	0.0000085 <sup>20°</sup>	.....	.....	.051 <sup>100°</sup> NH <sub>3</sub> aq.; sol. KCN	pale yel. octah.
2	0.0031 <sup>15°</sup>	.....	0.05 <sup>100°</sup>	sol. NH <sub>3</sub> aq., Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> ; insol. alcohol	.....
3 †	10 <sup>15°</sup>	.....	50 <sup>80°-90°</sup>	insol. alcohol. . . . . [KCN	tetrag. or reg. . .
4	0.000152 <sup>20°</sup>	.....	.....	sol. conc. HCl., NH <sub>3</sub> aq.,	regular. . . . .
5	0.0028 <sup>18°</sup>	.....	.....	sol. a., NH <sub>3</sub> aq., KCN . .	dark red cryst. .
6	0.028 <sup>18°</sup>	.....	0.0284 <sup>25°</sup>	sol. NH <sub>3</sub> aq., KCN . . . .	needles. . . . .
7	s. soluble	.....	.....	sol. HNO <sub>3</sub> , NH <sub>3</sub> aq., KCN	.....
8	0.000021 <sup>25°</sup>	.....	insoluble	sol. NH <sub>3</sub> aq., KCN, HNO <sub>3</sub>	white curdy. . . .
9	0.0083 <sup>15°</sup>	.....	decomp.	v. sol. HNO <sub>3</sub> , NH <sub>3</sub> aq., KCN	red triclinic. . .
10	insoluble	.....	.....	sol. NH <sub>3</sub> aq., hot (NH <sub>4</sub> ) <sub>2</sub> CO <sub>3</sub>	orange yellow . .
11	insoluble	.....	.....	sol. KCN, NH <sub>3</sub> aq.; insol. a.	yellowish white.
12	182 <sup>15.5°</sup>	.....	.....	.....	yellow tetrag. . .
13 decomp.	v. soluble	.....	.....	.....	crystals. . . . .
14	0.0044 <sup>20°</sup>	.....	s. soluble	sol. HNO <sub>3</sub> , NH <sub>3</sub> aq., KI	monoclinic. . . .
15	0.000035 <sup>21°</sup>	.....	.....	sol. KCN, Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> , NaCl	yellow hexag. . .
16 decomp.	122 <sup>20°</sup>	.....	940 <sup>100°</sup>	66 al., ether, glycerine .	rh'b. or hexag. .
17	0.33	.....	soluble	insoluble alcohol. . . . .	rhombohed.
18	insoluble	.....	.....	insol. al., HNO <sub>3</sub> ; sol. NH <sub>3</sub> aq.	crystals. . . . .
19	0.0073 <sup>20°</sup>	.....	.....	sol. NH <sub>3</sub> aq., KCN . . . .	flesh colored. . .
20	0.0043 <sup>20°</sup>	.....	.....	sol. NH <sub>3</sub> aq., KCN, Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> [NH <sub>3</sub> aq.	white. . . . .
21	insoluble	.....	.....	sol. conc. H <sub>2</sub> SO <sub>4</sub> , HNO <sub>3</sub> ,	brown powder.
22	soluble	.....	.....	.....	black octahed. .
23	0.55 <sup>20°</sup>	.....	1.69 <sup>28.5°</sup>	.....	.....
24	0.00193 <sup>20°</sup>	.....	.....	sol. acids, NH <sub>3</sub> aq., KCN	monoclinic. . . .
25	insoluble	.....	insoluble	sol. NH <sub>3</sub> aq., HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , KCN	yellow . . . . .
26	25 <sup>20°</sup>	.....	v. soluble.	4 alcohol; insol. acids. .	.....
27	insoluble	.....	.....	sol. conc. hot HNO <sub>3</sub> , NH <sub>3</sub> aq.	reg. octahedra.
28 decomp.	0.58	.....	1.45 <sup>100°</sup>	sol. H <sub>2</sub> SO <sub>4</sub> , HNO <sub>3</sub> , NH <sub>3</sub> aq.; insol. al.	gray. . . . .
29	insoluble	.....	.....	sol. conc. H <sub>2</sub> SO <sub>4</sub> , HNO <sub>3</sub>	rhombic. . . . .
30	s. soluble	.....	.....	sol. NH <sub>3</sub> aq.; insol. HNO <sub>3</sub>	gray black reg. or triclinic crystals. . . . .

† Decomposes at 270°

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Silver sulphocyanate.	AgCNS.....	166.03	.....	.....
2	tartrate.....	Ag <sub>2</sub> C <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .....	363.89	3.4321	decomp.
3	telluride.....	Ag <sub>2</sub> Te.....	343.46	8.318	.....
4	trinitride.....	AgN <sub>3</sub> .....	150.05	.....	250°
5	tungstate.....	Ag <sub>2</sub> WO <sub>4</sub> .....	463.86	.....	< redness
6	Sodium.....	Na.....	23.05	0.9735 <sup>13.5°</sup>	97.6°
7	acetate.....	NaC <sub>2</sub> H <sub>3</sub> O <sub>2</sub> .3H <sub>2</sub> O.....	136.12	1.4	58°
8	aluminate.....	Na <sub>2</sub> Al <sub>2</sub> O <sub>4</sub> .....	164.3	.....	.....
9	amide.....[phate	NaNH <sub>2</sub> .....	40.11	.....	155°
10	ammonium phos-	NaNH <sub>4</sub> HPO <sub>4</sub> .4H <sub>2</sub> O.....	209.19	1.554	decomp.
11	antimonate.....	2NaSbO <sub>3</sub> .7H <sub>2</sub> O.....	508.61	.....	.....
12	" pyro.....	Na <sub>2</sub> H <sub>2</sub> Sb <sub>2</sub> O <sub>7</sub> .H <sub>2</sub> O.....	418.53	.....	.....
13	arsenate.....	Na <sub>3</sub> AsO <sub>4</sub> .12H <sub>2</sub> O.....	424.34	1.7593	85.5°
14	" acid.....	Na <sub>2</sub> HAsO <sub>4</sub> .7H <sub>2</sub> O.....	312.22	.....	57°
15	" acid.....	Na <sub>2</sub> HAsO <sub>4</sub> .12H <sub>2</sub> O.....	402.30	1.67-1.76	28°
16	arsenite.....	Na <sub>2</sub> HAsO <sub>3</sub> .....	170.11	1.87	.....
17	aurosulphide.....	NaAuS.4H <sub>2</sub> O.....	324.37	.....	.....
18	borate tetra.....	Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> .....	202.10	2.367	878°
19	" ".....	Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> .5H <sub>2</sub> O.....	292.18	1.815	.....
20	" " borax.....	Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> .10H <sub>2</sub> O.....	382.26	1.694 <sup>17°</sup>	red heat
21	" meta.....	Na <sub>2</sub> B <sub>2</sub> O <sub>4</sub> .4H <sub>2</sub> O.....	204.16	.....	57°
22	bromate.....	NaBrO <sub>3</sub> .....	151.01	3.339 <sup>17.5</sup> <sub>17.5</sub>	381°
23	bromide.....	NaBr.....	103.01	2.95-3.08	757.7°
24	" ".....	NaBr.2H <sub>2</sub> O.....	139.04	2.176 <sup>†</sup>	.....
25	bromplatinate.....	Na <sub>2</sub> PtBr <sub>6</sub> .6H <sub>2</sub> O.....	828.76	3.323	decomp.
26	carbide.....	Na <sub>2</sub> C <sub>2</sub> .....	70.10	1.575 <sup>15°</sup>	.....
27	carbonate.....	Na <sub>2</sub> CO <sub>3</sub> .....	106.10	2.43-2.51	849°
28	" ".....	Na <sub>2</sub> CO <sub>3</sub> .10H <sub>2</sub> O.....	286.26	1.446 <sup>17°</sup>	† 34°
29	" acid.....	NaHCO <sub>3</sub> .....	84.06	2.19-2.22	†
30	" sesqui.....	Na <sub>4</sub> H <sub>2</sub> (CO <sub>3</sub> ) <sub>3</sub> .3H <sub>2</sub> O.....	328.26	2.112	decomp.
31	chlorate.....	NaClO <sub>3</sub> .....	106.50	2.490 <sup>15°</sup>	248°-302°
32	chloraurate.....	NaAuCl <sub>4</sub> .2H <sub>2</sub> O.....	398.08	.....	.....
33	chloride.....	NaCl.....	58.50	2.1741 <sup>‡</sup>	780°-820°
34	chlororhodate.....	Na <sub>3</sub> RhCl <sub>6</sub> .....	384.85	.....	.....
35	chloriridate.....	Na <sub>2</sub> IrCl <sub>6</sub> .6H <sub>2</sub> O.....	559.90	.....	.....
36	chloroplatinate.....	Na <sub>2</sub> PtCl <sub>6</sub> .6H <sub>2</sub> O.....	561.70	2.499	6H <sub>2</sub> O, 100
37	chromate.....	Na <sub>2</sub> CrO <sub>4</sub> .10H <sub>2</sub> O.....	342.36	2.71 <sup>16°</sup>	23°
38	cyanide.....	NaCN.....	49.09	.....	.....
39	dichromate.....	Na <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> .2H <sub>2</sub> O.....	298.33	2.52 <sup>16°</sup>	§
40	dithionate.....	Na <sub>2</sub> S <sub>2</sub> O <sub>6</sub> .2H <sub>2</sub> O.....	242.25	2.175 <sup>11°</sup>	.....

\* Loses 7H<sub>2</sub>O above 120°.† Loses 5H<sub>2</sub>O at 12.5°.



Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	.000021 <sup>25°</sup>	.....	insol. dil. a.; sol. NH <sub>3</sub> aq	curdy.....
2	.....	0.218°	0.203 <sup>25°</sup>	soluble NH <sub>3</sub> aq., KCN.	scales.....
3	.....	insoluble	.....	sol. warm HNO <sub>3</sub> , KCN.	gray octahedra.
4	explodes	insoluble	.011 <sup>100°</sup>	sol. dil. HNO <sub>3</sub> , conc. a.	prisms.....
5	.....	.051 <sup>15°</sup>	.....	sol. HNO <sub>3</sub> , NH <sub>3</sub> aq., KCN	pale yel. cryst..
6	877.5°	decomp.	decomp.	insol. benzol., kero.;	.....
7	123°	26 <sup>6°</sup>	200	sol. al. 2.118° .... [sol a.	monocl. prisms.
8	.....	soluble	v. soluble	insoluble alcohol	amorphous....
9	400°	decomposes	decomposes	.....	olive green....
10	.....	16.7	100	insoluble alcohol	monoclinic....
11	.....	.03112.3°	.....	s. sol. al., NH <sub>4</sub> salts.	octahedra....
12	.....	s. soluble	s. soluble	s. soluble alcohol	.....
13	.....	26.71 <sup>7°</sup>	.....	.....	.....
14	*	611 <sup>5°</sup>	v. soluble	s. sol. alcohol	crystalline....
15	.....	17.2°	140.73°	insoluble alcohol	mono. or rhom..
16	.....	v. soluble	s. soluble	.....	.....
17	.....	soluble	.....	soluble alcohol	monoclinic....
18	.....	soluble	soluble	insoluble alcohol	.....
19	.....	soluble	soluble	.....	octahedral....
20	.....	2.83°	201.41 <sup>100°</sup>	insol. a.; sol. glycerine.	monoclinic....
21	.....	soluble	v. soluble	.....	monoclinic....
22	.....	27.54 <sup>0°</sup>	9091 <sup>100°</sup>	insol. alcohol	††
23	.....	77.5°	114.91 <sup>100°</sup>	s. soluble alcohol	regular.....
24	.....	102.5°	152.91 <sup>100°</sup>	.....	.....
25	.....	v. soluble	.....	v. soluble alcohol	dark red triclín.
26	700°	decomp.	decomp.	sol. acids; decomp. al.	powder.....
27	decomp.	7.1°	45.41 <sup>100°</sup>	insoluble alcohol	.....
28	106°	21.33°	1142 <sup>38°</sup>	insoluble alcohol	monoclinic....
29	.....	6.90°	16.40 <sup>6°</sup>	insoluble alcohol	monoclinic....
30	.....	12.63°	41.591 <sup>100°</sup>	.....	monoclinic....
31	decomp.	81.9°	3331 <sup>20°</sup>	soluble alcohol	reg. tetrahedral
32	.....	1501°	990 <sup>60°</sup>	v. sol. absolute al.	[hexag. rhb.
33	white heat	35.7°	391 <sup>100°</sup>	insol. conc. HCl; s.sol.al	regular.....
34	.....	.....	.....	.....	.....
35	.....	v. soluble	v. soluble	soluble alcohol	red triclíníc....
36	.....	v. soluble	v. soluble	sol.al., Cl <sub>2</sub> aq.; insol. ether	red triclíníc....
37	.....	v. soluble	v. soluble	s. soluble alcohol	yellow trich....
38	.....	soluble	v. soluble	s. soluble alcohol	.....
39	†	107.2°	162.81 <sup>100°</sup>	.....	red triclíníc....
40	.....	47.61 <sup>8°</sup>	90.91 <sup>100°</sup>	insol. alcohol, conc. HCl	rhombic.....

† Loses CO<sub>2</sub> at 270°.      § Loses 2H<sub>2</sub>O at 100°.      † Decomp. at 400°.

†† Regular tetrahedral, hexagonal rhombohedral or rhombic.

Number	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Sodium ferricyanide.	$\text{Na}_3\text{Fe}(\text{CN})_6 \cdot \text{H}_2\text{O}$	299.31		
2	ferric oxalate	$\text{Na}_3\text{Fe}(\text{C}_2\text{O}_4)_3 \cdot 5\frac{1}{2}\text{H}_2\text{O}$	488.14	1.9731 <sup>17.5°</sup>	4H <sub>2</sub> O, 100
3	ferrite	$\text{Na}_2\text{Fe}_2\text{O}_4$	221.90		
4	ferrocyanide	$\text{Na}_4\text{Fe}(\text{CN})_6 \cdot 12\text{H}_2\text{O}$	520.53	1.458	
5	fluoride	$\text{NaF}$	42.05	2.766	980°
6	fluosilicate	$\text{Na}_2\text{SiF}_6$	188.50	2.755 <sup>17.5°</sup>	†
7	formate	$\text{NaCHO}_2$	68.06	1.919	decomp.
8	hydride	$\text{NaH}$	24.06	0.92	decomp.
9	hydrosulphide	$\text{NaSH} \cdot 2\text{H}_2\text{O}$	92.15		decomp.
10	hydroxide	$\text{NaOH}$	40.06	2.13	1098°
11	hypochlorite	$\text{NaOCl}$	74.50		decomp.
12	hypophosphate	$\text{Na}_4\text{P}_2\text{O}_6 \cdot 10\text{H}_2\text{O}$	430.36	1.832	
13	“ acid	$\text{Na}_2\text{H}_2\text{P}_2\text{O}_6 \cdot 6\text{H}_2\text{O}$	314.21	1.840	decomp.
14	hypophosphite	$\text{NaH}_2\text{PO}_2 \cdot \text{H}_2\text{O}$	106.08		
15	hyposulphite	$\text{NaHSO}_2$	88.12		
16	iodate	$\text{NaIO}_3$	198.02	4.277	decomp.
17	iodide	$\text{NaI}$	150.02	3.654 <sup>18.2°</sup>	603°–695°
18	“	$\text{NaI} \cdot 2\text{H}_2\text{O}$	186.05	2.448	
19	lactate	$\text{NaC}_3\text{H}_5\text{O}_3$	112.09		decomp.
20	manganate	$\text{Na}_2\text{MnO}_4 \cdot 10\text{H}_2\text{O}$	345.26		
21	molybdate	$\text{Na}_2\text{MoO}_4 \cdot 2\text{H}_2\text{O}$	242.13		
22	“ di-	$\text{Na}_2\text{Mo}_2\text{O}_7$	350.10		red heat
23	“ tri-	$\text{Na}_2\text{Mo}_3\text{O}_{10} \cdot 7\text{H}_2\text{O}$	620.21		
24	“ tetra-	$\text{Na}_2\text{Mo}_4\text{O}_{13} \cdot 6\text{H}_2\text{O}$	746.20		< red heat
25	“ octo-	$\text{Na}_2\text{Mo}_8\text{O}_{26} \cdot 4\text{H}_2\text{O}$	1286.2		
26	“ deka-	$\text{Na}_2\text{Mo}_{10}\text{O}_{31} \cdot 12\text{H}_2\text{O}$	1718.3		
27	nitrate	$\text{NaNO}_3$	85.09	2.267 <sup>2°</sup>	308°–319°
28	nitride	$\text{Na}_3\text{N}$	83.19		
29	nitrite	$\text{NaNO}_2$	69.09		213°
30	nitroprusside	$\text{Na}_2\text{Fe}(\text{CN})_5\text{NO} \cdot 2\text{H}_2\text{O}$	298.27	1.6803 <sup>17°</sup>	
31	oxalate	$\text{Na}_2\text{C}_2\text{O}_4$	134.10		
32	“ acid	$\text{NaHC}_2\text{O}_4 \cdot \text{H}_2\text{O}$	130.07		
33	oxide	$\text{Na}_2\text{O}$	62.10	2.805	red heat
34	paratungstate	$\text{Na}_6\text{W}_7\text{O}_{24} \cdot 16\text{H}_2\text{O}$	2098.6		16H <sub>2</sub> O, 300
35	perborate	$\text{NaBO}_3 \cdot \text{H}_2\text{O}$	100.07		dec. 40°
36	“	$\text{NaBO}_3 \cdot 4\text{H}_2\text{O}$	154.11		
37	perborax	$\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$	382.26		
38	perchlorate	$\text{NaClO}_4$	122.50		482°
39	perchromate	$\text{Na}_2\text{CrO}_8$	249.25		dec. 115°
40	permanganate	$\text{NaMnO}_4 \cdot 3\text{H}_2\text{O}$	196.10		decomp.
41	peroxide	$\text{Na}_2\text{O}_2$	78.10	2.805	decomp.

\* Loses  $5\frac{1}{2}$  H<sub>2</sub>O at 200°.

† Decomposes at red heat.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	18.9	80 <sup>100°</sup>	insoluble alcohol.	red.	
2*	32.5°	182 <sup>100°</sup>		green crystals.	
3	decomposes		v. soluble dil. HCl.		
4	22 <sup>15.5°</sup>		insoluble alcohol.	yellow monocl.	
5	4 <sup>15°</sup>		s. soluble alcohol.	reg. . . [hexag.	
6	0.65 <sup>17.5°</sup>	2.46 <sup>100°</sup>	insoluble alcohol.	gelatinous or	
7	soluble	soluble	s. sol. al.; insol. ether.	rhombic.	
8	decomposes	decomp.	insol. CS <sub>2</sub> , CCl <sub>4</sub> , benzine;	silvery needles.	
9	soluble	soluble	soluble alcohol [sol. Na	needles.	
10	white heat	133.3 <sup>18°</sup>	250 <sup>80°</sup>	v. sol. al., ether, glyc.	
11	soluble	decomposes			
12	33	v. soluble			
13	2.2	20	insoluble alcohol.		
14	soluble	soluble	v. soluble alcohol.	mono. prisms	
15	v. soluble		soluble alcohol.		
16	2.52°	33.9 <sup>100°</sup>	insol. al.; sol. H.C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> .		
17	158.7°	312.5 <sup>100°</sup>	v. soluble alcohol.	regular.	
18	194.0°	396 <sup>100°</sup>			
19	v. soluble		sol. al.; insol. ether.	amorphous . .	
20	soluble	decomposes		green monocl.	
21	v. soluble			tablets	
22	s. soluble	s. soluble		needles.	
23	3.878 <sup>20°</sup>	13.7 <sup>100°</sup>		needles.	
24	s. soluble	v. soluble			
25	insoluble	insoluble		powder.	
26	s. soluble	s. soluble		crystalline.	
27	decomp.	72.9°	180 <sup>100°</sup>	s. sol. alcohol, glycerene	
28				rhombohedral.	
29	83.3 <sup>20°</sup>	v. soluble	0.31 <sup>19.5°</sup> et. al., 4.43 <sup>19.5°</sup>	dark gray	
30	40 <sup>15°</sup>		[methyl al.	crystalline.	
31	31 <sup>5°</sup>			red triclinic.	
32	1.7 <sup>15°</sup>				
33	sublimes	decomposes	decomposes alcohol.	monoclinic.	
34	8	decomposes		grayish.	
35	2.55 <sup>15°</sup>	3.78 <sup>32°</sup>	soluble glycerine.	triclinic.	
36	s. soluble	decomp.	soluble acids.		
37	4.21°	13.8 <sup>32°</sup>		crystals.	
38	decomp.	soluble	v. soluble	crystals.	
39	s. soluble		soluble alcohol.	rhombohedral.	
40	v. soluble	v. soluble	insol. alcohol, ether.	orange plates.	
41	soluble	decomposes	soluble dilute acids.	dark red cryst.	
				yellow.	

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Sodium perruthenate	$\text{NaRuO}_4 \cdot \text{H}_2\text{O}$ . . . . .	206.77	.....	.....
2	peruranate . . . . .	$\text{Na}_2\text{UO}_6 \cdot 5\text{H}_2\text{O}$ . . . . .	454.68	.....	dec. 100°
3	phosphate (trisod.)	$\text{Na}_3\text{PO}_4 \cdot 12\text{H}_2\text{O}$ . . . . .	380.34	1.618–1.645	77°
4	“ (disod.)	$\text{Na}_2\text{HPO}_4 \cdot 12\text{H}_2\text{O}$ . . . . .	358.3	1.5235 <sup>16°</sup>	35°
5	“ (mono-)	$\text{NaH}_2\text{PO}_4 \cdot \text{H}_2\text{O}$ . . . . .	138.08	2.040	2H <sub>2</sub> O, 200°
6	“ meta- . .	$\text{Na}_4\text{P}_2\text{O}_{12}$ . . . . .	408.20	2.476	617°
7	“ pyro- . .	$\text{Na}_4\text{P}_2\text{O}_7 \cdot 10\text{H}_2\text{O}$ . . . . .	446.36	1.824	anh. 970°
8	“ “ (di- sodium)	$\text{Na}_2\text{H}_2\text{P}_2\text{O}_7 \cdot 6\text{H}_2\text{O}$ . . . . .	330.21	1.848	.....
9	phosphite . . . . .	$\text{Na}_2\text{HPO}_3 \cdot 5\text{H}_2\text{O}$ . . . . .	216.19	.....	53°
10	“ acid . . . . .	$2\text{NaH}_2\text{PO}_3 \cdot 5\text{H}_2\text{O}$ . . . . .	298.21	.....	42°
11	platinate . . . . .	$\text{Na}_4\text{PtO}_6 \cdot 3\text{H}_2\text{O}$ . . . . .	342.95	.....	†
12	potass. carbonate . .	$\text{NaKCO}_3 \cdot 6\text{H}_2\text{O}$ . . . . .	230.30	1.6334	6H <sub>2</sub> O, 100°
13	“ tartrate . . . . .	$\text{NaKC}_4\text{H}_4\text{O}_6 \cdot 4\text{H}_2\text{O}$ . . . . .	282.30	1.77	70°–80°
14	salicylate . . . . .	$\text{NaC}_7\text{H}_5\text{O}_3$ . . . . .	160.09	.....	.....
15	selenate . . . . .	$\text{Na}_2\text{SeO}_4$ . . . . .	189.30	3.209 <sup>17.2°</sup>	.....
16	selenide . . . . .	$\text{Na}_2\text{Se}$ . . . . .	125.30	.....	fusible
17	silicate . . . . .	$\text{Na}_2\text{SiO}_3$ . . . . .	122.50	.....	10.07°
18	“ (water glass)	$\text{Na}_2\text{Si}_2\text{O}_6$ . . . . .	303.70	.....	.....
19	stannate . . . . .	$\text{Na}_2\text{SnO}_3 \cdot 3\text{H}_2\text{O}$ . . . . .	267.15	.....	.....
20	sulphate . . . . .	$\text{Na}_2\text{SO}_4$ . . . . .	142.16	2.671 <sup>‡</sup>	860°–897°
21	“ . . . . .	$\text{Na}_2\text{SO}_4 \cdot 7\text{H}_2\text{O}$ . . . . .	268.27	.....	.....
22	“ . . . . .	$\text{Na}_2\text{SO}_4 \cdot 10\text{H}_2\text{O}$ . . . . .	322.32	1.492 <sup>20°</sup>	32.383°
23	“ acid . . . . .	$\text{NaHSO}_4$ . . . . .	120.12	2.435 <sup>13°</sup>	300°
24	sulphide mono- . . . .	$\text{Na}_2\text{S}$ . . . . .	78.16	2.471	infusible
25	“ penta- . . . . .	$\text{Na}_2\text{S}_5$ . . . . .	206.40	.....	.....
26	sulphite . . . . .	$\text{Na}_2\text{SO}_3$ . . . . .	126.16	.....	150°
27	“ . . . . .	$\text{Na}_2\text{SO}_3 \cdot 7\text{H}_2\text{O}$ . . . . .	252.27	1.561	7H <sub>2</sub> O, 150°
28	“ acid . . . . .	$\text{NaHSO}_3$ . . . . .	104.12	1.48	decomp.
29	sulphocyanate . . . . .	$\text{NaCNS}$ . . . . .	81.15	.....	.....
30	tartrate . . . . .	$\text{Na}_2\text{C}_4\text{H}_4\text{O}_6 \cdot 2\text{H}_2\text{O}$ . . . . .	230.16	1.794	.....
31	thioantimonate (Schlipp's salt)	$\text{Na}_3\text{SbS}_4 \cdot 9\text{H}_2\text{O}$ . . . . .	479.73	1.864	.....
32	thioarsenate . . . . .	$2\text{Na}_3\text{AsS}_4 \cdot 15\text{H}_2\text{O}$ . . . . .	815.02	.....	.....
33	thiocarbonate . . . . .	$\text{Na}_2\text{CS}_3 \cdot \text{H}_2\text{O}$ . . . . .	172.30	.....	decomp.
34	thioplantinate . . . . .	$\text{Na}_4\text{PtS}_6$ . . . . .	868.96	.....	.....
35	thiosulphate . . . . .	$\text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O}$ . . . . .	248.30	1.729 <sup>17°</sup>	32°–48°
36	tungstate . . . . .	$\text{Na}_2\text{WO}_4 \cdot 2\text{H}_2\text{O}$ . . . . .	330.13	3.259 <sup>17.5°</sup>	2H <sub>2</sub> O, 100°
37	uranate . . . . .	$\text{Na}_2\text{UO}_4$ . . . . .	348.60	.....	.....
38	vanadate . . . . .	$\text{Na}_3\text{VO}_4 \cdot 16\text{H}_2\text{O}$ . . . . .	472.61	.....	866 (anh.)

\* Loses 11 H<sub>2</sub>O at 100°. † Loses 12H<sub>2</sub>O at 100°. ‡ 3H<sub>2</sub>O, 150°–170°.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	s. soluble	.....	.....	black crystals..
2	.....	decomp.	decomp.	decomp. HCl.....	red crystals....
3*	28.315°	v. soluble	.....	.....	hexagonal.....
4†	6.30°	.....	236.8100°	insoluble alcohol.....	rhombic.....
5	.....	v. soluble	.....	insoluble alcohol.....	rhombic.....
6†	.....	insoluble	insoluble	soluble acids, alkalies ..	.....
7	5.40°	.....	93	insoluble alcohol.....	monoclinic.....
8	.....	.....	.....	.....	.....
9	.....	soluble	v. soluble	insoluble alcohol.....	rhombohedral..
10§	560°	.....	19342°	.....	.....
11	.....	soluble	.....	insoluble alcohol.....	yellow.....
12	18515°	.....	.....	.....	monoclinic.....
13	26°	.....	6626°	.....	trimet. prisms..
14	.....	v. soluble	.....	.....	.....
15	.....	v. soluble	.....	.....	.....
16	.....	decomposes	.....	.....	crystals.....
17	.....	soluble	soluble	insol. al. Na and K salts	.....
18	.....	soluble	soluble	insol. al., Na and K salts	amorphous....
19	67.40°	.....	61.320°	insoluble alcohol.....	hexag. plates..
20	4.80°	.....	42.5100°	insoluble alcohol.....	rhomb. monocl. or hexagonal.
21	44.840°	.....	202.626°	.....	rhomb. or tetr.
22	12.160°	.....	41234°	insoluble alcohol.....	monoclinic.....
23	50°	.....	100100°	decomp. by alcohol....	triclinic.....
24	.....	soluble	soluble	s. sol. al.; insol. ether..	flesh col. amor.
25	.....	soluble	soluble	s. sol. alcohol.....	.....
26 decomp	14.10°	.....	49.540°	insoluble alcohol.....	.....
27 decomp.	2515°	.....	100100°	insoluble alcohol.....	monocl. prisms
28	s. soluble	soluble	.....	insoluble alcohol.....	.....
29	v. soluble	v. soluble	.....	v. soluble alcohol.....	rhombic plates
30	296°	.....	6642.5°	insoluble alcohol.....	trimet. prisms.
31	33	.....	.....	insoluble alcohol.....	yellow regular.
32	v. soluble	.....	.....	insoluble alcohol.....	yel. monoclinic
33	soluble	decomposes	.....	.....	yellow... [dles
34	insoluble	decomposes	.....	.....	red rhomb. nee-
35 decomp.	74.70°	.....	301.560°	insoluble alcohol [H <sub>2</sub> SO <sub>4</sub>	monocl. prisms
36	41°	.....	123.5100°	insol. al., HCl, HNO <sub>3</sub> ,	rhombic tablets
37	insoluble	insoluble	.....	sol. dilute acids .....	yellow.....
38	v. soluble	.....	.....	insoluble alcohol.....	crystalline....

† Decomposes at red heat. § Loses 5H<sub>2</sub>O at 100°. || Loses 4H<sub>2</sub>O at 215°.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Stannic acid.....	H <sub>2</sub> SnO <sub>3</sub> .....	169.02	.....	.....
2	“ “ meta-.....	H <sub>10</sub> Sn <sub>3</sub> O <sub>15</sub> .....	845.08	.....	.....
3	“ “ thio-.....	H <sub>2</sub> SnS <sub>3</sub> .....	217.20	.....	.....
4	ammonium chloride.....	SnCl <sub>4</sub> .(NH <sub>4</sub> Cl) <sub>2</sub> .....	367.84	.....	.....
5	bromide.....	SnBr <sub>4</sub> .....	438.84	3.349 <sup>35°</sup>	30°-33°
6	chloride.....	SnCl <sub>4</sub> .....	260.80	2.2788 <sup>‡</sup>	-33°
7	fluoride.....	SnF <sub>4</sub> .....	195.00	4.780	750°
8	iodide.....	SnI <sub>4</sub> .....	626.88	4.696 <sup>11°</sup>	143°
9	oxide.....	SnO <sub>2</sub> .....	151.00	6.6-6.9	1127°
10	“ cryst.....	SnO <sub>2</sub> .....	151.00	6.7-6.85	infusible
11	oxychloride.....	SnOCl <sub>2</sub> .....	205.90	.....	.....
12	phosphate.....	2SnO <sub>2</sub> .P <sub>2</sub> O <sub>5</sub> .10H <sub>2</sub> O.....	624.16	3.98 (anh.)	.....
13	phosphide.....	SnP.....	151.00	6.56	.....
14	selenide.....	SnSe <sub>2</sub> .....	277.4	4.85	.....
15	sulphate.....	Sn(SO <sub>4</sub> ) <sub>2</sub> .2H <sub>2</sub> O.....	347.15	.....	.....
16	sulphide.....	SnS <sub>2</sub> .....	183.12	4.42-4.60	†
17	Stannous bromide.....	SnBr <sub>2</sub> .....	278.92	5.117 <sup>17°</sup>	215.5°
18	chloride.....	SnCl <sub>2</sub> .....	189.90	.....	249.3°
19	“ (tin salt).....	SnCl <sub>2</sub> .2H <sub>2</sub> O.....	225.93	2.71 <sup>15.5°</sup>	37.7°
20	ferriecyanide.....	Sn <sub>3</sub> (Fe(CN) <sub>6</sub> ) <sub>2</sub> .....	781.28	.....	.....
21	ferrocyanide.....	Sn <sub>2</sub> Fe(CN) <sub>6</sub> .....	450.14	.....	.....
22	fluoride.....	SnF <sub>2</sub> .....	157.00	.....	.....
23	hydroxide.....	Sn(OH) <sub>2</sub> .....	153.02	.....	.....
24	iodide.....	SnI <sub>2</sub> .....	372.94	.....	316°
25	oxide.....	SnO.....	135.00	6.3	decomp.
26	oxychloride.....	SnOSnCl <sub>2</sub> .6H <sub>2</sub> O.....	433.00	.....	.....
27	selenide.....	SnSe.....	198.20	6.179 <sup>9°</sup>	.....
28	sulphate.....	SnSO <sub>4</sub> .....	215.06	.....	.....
29	sulphide.....	SnS.....	151.06	5.27 <sup>15°</sup>	950°-100°
30	teluride.....	SnTe.....	246.60	6.478 <sup>9°</sup>	.....
31	Strontium.....	Sr.....	87.6	2.54	900°
32	arsenate.....	SrHAsO <sub>4</sub> .H <sub>2</sub> O.....	245.02	3.606 <sup>15°</sup>	.....
33	arsenite.....	Sr(AsO <sub>2</sub> ) <sub>2</sub> .4H <sub>2</sub> O.....	373.66	.....	.....
34	borate.....	SrB <sub>4</sub> O <sub>7</sub> .4H <sub>2</sub> O.....	315.66	.....	.....
35	boride.....	SrB <sub>3</sub> .....	153.6	3.28 <sup>15°</sup>	.....
36	bromate.....	Sr(BrO <sub>3</sub> ) <sub>2</sub> .H <sub>2</sub> O.....	361.54	3.773	dec. 240°
37	bromide.....	SrBr <sub>2</sub> .....	247.52	4.216 <sup>‡</sup>	498-630°
38	“.....	SrBr <sub>2</sub> .6H <sub>2</sub> O.....	355.62	2.358	.....
39	carbide.....	SrC <sub>2</sub> .....	111.6	3.19	.....

\* Orange red octahedra.

† Decomposes at red heat.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	s. soluble	insoluble	sol. dil. acids, alk. ....	amorphous ...
2	.....	insoluble	insoluble	insol. acids; sol. KOH. .	.....
3	.....	insoluble	.....	.....	gray .....
4	.....	soluble	.....	.....	.....
5	203°	soluble	decomp.	..... [tine	.....
6	114°	soluble	decomp.	sol. al., CS <sub>2</sub> , oil of turpen-	liquid. ....
7	.....	v. soluble	.....	.....	crystals .....
8	341°	v. soluble	.....	145 <sup>15</sup> ° CS <sub>2</sub> ; sol. al., ether	* .....
9	.....	insoluble	insoluble	soluble conc. H <sub>2</sub> SO <sub>4</sub> . . .	amorphous ...
10	.....	insoluble	insoluble	soluble conc. H <sub>2</sub> SO <sub>4</sub> . . .	tetrag. hexag.
11	.....	soluble	.....	.....	[or rhombic
12	.....	insoluble	insoluble	insoluble HNO <sub>3</sub> . . .	.....
13	.....	insoluble	.....	sol. HCl; insol. HNO <sub>3</sub> . .	.....
14	.....	insoluble	.....	insol. dil. a.; sol. alk.,	crystals .....
15	.....	v. soluble	.....	hot conc. H <sub>2</sub> SO <sub>4</sub>	.....
16	.....	insoluble	insoluble	sol. dil. H <sub>2</sub> SO <sub>4</sub> , HCl. . .	rhomb. leaflets
17	617°-634°	soluble	decomposes	sol. conc. HCl, alk. sul-	yellow hexag.
18	603°-628°	83. 90°	269. 8 <sup>15</sup> °	..... [phides	yellow crystals
19	decomp.	100. 70°	323 <sup>15</sup> °	sol. alk., al., tartaric acid	.....
20	.....	insoluble	.....	sol. alk., al., tartaric acid	monoclinic. . .
21	.....	insoluble	.....	sol. HCl. . .	.....
22	.....	v. soluble	.....	sol. hot conc. HCl. . .	.....
23	.....	insoluble	decomp.	sol. dil. a., alk.; insol.	prisms. ....
24	.....	s. soluble	soluble	NH <sub>4</sub> OH	yellow. amor.
25	.....	insoluble	.....	sol. dil. HCl, KOH. ....	red crystals. . .
26	.....	insoluble	insoluble	sol. a., NH <sub>4</sub> Cl; insol. alk.	black regular. .
27	.....	insoluble	.....	sol. dil. acids., al. ....	.....
28	.....	insoluble	.....	sol. alk. sulphides. ....	steel gray pr.
29	1090°	18. 91 <sup>9</sup> °	18. 21 <sup>100</sup> °	sol. H <sub>2</sub> SO <sub>4</sub> . . .	crystals. ....
30	.....	insoluble	insoluble	sol. conc. HCl, (NH <sub>4</sub> ) <sub>2</sub> Sx	gray crystals. .
31	burns	decomp.	decomp.	insol. conc. HCl. . .	gray crystals. .
32	.....	0. 284 <sup>15.5</sup> °	decomp.	sol. acids, alcohol. ....	crystalline. . .
33	.....	s. soluble	.....	sol. in acids. . . [H <sub>3</sub> AsO <sub>4</sub>	rhomb. needles
34	.....	.....	.....	s. soluble al., Sr(OH) <sub>2</sub> , .	crystalline. . .
35	.....	.....	77 <sup>100</sup> °	sol. HNO <sub>3</sub> , NH <sub>4</sub> salts. .	.....
36	.....	insoluble	insoluble	soluble HNO <sub>3</sub> . . .	black crystals.
37	†	33 <sup>15</sup> °-18°	.....	.....	monocl. prisms
38	.....	87. 70°	250 <sup>110</sup> °	sol. ethyl & amyl. al. . .	needles. ....
39	.....	126 <sup>0</sup> °	359 <sup>110</sup> °	.....	.....
39	.....	decomp.	decomp.	decomp. by acids. ....	black crystals.

† Loses H<sub>2</sub>O at 120°.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Strontium carbonate.	SrCO <sub>3</sub> .....	147.6	3.62	dec. 1155°
2	chlorate.....	Sr(ClO <sub>3</sub> ) <sub>2</sub> .....	254.50	3.152	dec. 290°.
3	".....	Sr(ClO <sub>3</sub> ) <sub>2</sub> .....	398.63	.....	.....
4	chloride.....	SrCl <sub>2</sub> .....	158.5	3.054	796°-854°
5	".....	SrCl <sub>2</sub> .6H <sub>2</sub> O.....	266.60	1.964 <sup>16.7°</sup>	112° *
6	chromate.....	SrCrO <sub>4</sub> .....	203.70	3.895 <sup>15°</sup>	.....
7	cyanide.....	Sr(CN) <sub>2</sub> .4H <sub>2</sub> O.....	211.74	.....	decomp.
8	dithionate.....	SrS <sub>2</sub> O <sub>6</sub> .4H <sub>2</sub> O.....	319.78	2.373	4H <sub>2</sub> O, 78°
9	ferrocyanide.....	Sr <sub>2</sub> Fe(CN) <sub>6</sub> .15H <sub>2</sub> O.....	657.58	.....	.....
10	fluoride.....	SrF <sub>2</sub> .....	125.60	4.21	902°
11	fluosilicate.....	SrSiF <sub>6</sub> .2H <sub>2</sub> O.....	266.03	2.999	†
12	formate.....	Sr(CHO <sub>2</sub> ) <sub>2</sub> .2H <sub>2</sub> O.....	213.65	2.25	decomp.
13	hydrosulphide.....	Sr(SH) <sub>2</sub> .....	153.74	.....	decomp.
14	hydroxide.....	Sr(OH) <sub>2</sub> .....	121.62	3.625	.....
15	".....	Sr(OH) <sub>2</sub> .8H <sub>2</sub> O.....	265.74	1.396 <sup>16°</sup>	.....
16	iodide.....	SrI <sub>2</sub> .....	341.54	4.415 <sup>10°</sup>	507°-645°
17	".....	SrI <sub>2</sub> .6H <sub>2</sub> O.....	449.64	4.415	.....
18	molybdate.....	SrMoO <sub>4</sub> .....	247.6	4.145	.....
19	nitrate.....	Sr(NO <sub>3</sub> ) <sub>2</sub> .....	211.68	2.981 <sup>6.8°</sup>	645°
20	".....	Sr(NO <sub>3</sub> ) <sub>2</sub> .4H <sub>2</sub> O.....	283.74	2.249 <sup>15.5°</sup>	.....
21	nitrite.....	Sr(NO <sub>2</sub> ) <sub>2</sub> .H <sub>2</sub> O.....	197.70	.....	H <sub>2</sub> O, 44°
22	oxalate.....	SrC <sub>2</sub> O <sub>4</sub> .H <sub>2</sub> O.....	193.62	.....	decomp.
23	oxide.....	SrO.....	103.6	4.45-4.75	3000°
24	" per-.....	SrO <sub>2</sub> .....	119.6	0.546	decomp.
25	" ".....	SrO <sub>2</sub> .8H <sub>2</sub> O.....	263.73	.....	8H <sub>2</sub> O, 100
26	permanganate.....	Sr(MnO <sub>4</sub> ) <sub>2</sub> .3H <sub>2</sub> O.....	379.65	.....	decomp.
27	phosphate acid.....	SrHPO <sub>4</sub> .....	183.61	3.544 <sup>15°</sup>	.....
28	selenate.....	SrSeO <sub>4</sub> .....	230.80	4.23	.....
29	sulphate.....	SrSO <sub>4</sub> .....	183.66	3.71-3.97	§
30	" acid.....	Sr(HSO <sub>4</sub> ) <sub>2</sub> .....	281.74	.....	decomp.
31	sulphide mono-.....	SrS.....	119.66	3.72 <sup>16°</sup>	.....
32	" tetra-.....	SrS <sub>4</sub> .6H <sub>2</sub> O.....	323.94	.....	.....
33	sulphite.....	SrSO <sub>3</sub> .....	167.66	.....	decomp.
34	sulphocyanate.....	Sr(CNS) <sub>2</sub> .3H <sub>2</sub> O.....	257.85	.....	3H <sub>2</sub> O, 100°
35	tartrate.....	SrC <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .4H <sub>2</sub> O.....	307.70	1.966 <sup>19.8</sup>	.....
36	thiosulphate.....	SrS <sub>2</sub> O <sub>3</sub> .5H <sub>2</sub> O.....	289.80	2.178 <sup>17°</sup>	4H <sub>2</sub> O, 100°
37	Sulphur amorph. soft	S <sub>8</sub> .....	256.48	1.9556 <sup>0°</sup>	> 120°
38	" yellow.	S <sub>8</sub> .....	256.48	2.046	.....

\* Loses 4H<sub>2</sub>O at 60° 6H<sub>2</sub>O at 100°

† Decomposes at 1000°.



Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	0.0011 <sup>18°</sup>	.....	0.12 H <sub>2</sub> CO <sub>3</sub> aq.; sol. a., NH <sub>4</sub> salts	rhombic.....
2	.....	soluble	v. soluble	soluble alcohol.....	rhomb. or mon.
3	.....	soluble	v. soluble	soluble alcohol.....	needles.....
4	.....	44.2°	101.9 <sup>100°</sup>	sol. absolute alcohol.....	.....
5	.....	106.2°	205.8 <sup>40°</sup>	.....	hexag. needles
6	.....	0.12	.....	sol. acetic acid, NH <sub>4</sub> salts	monocl. prisms
7	.....	v. soluble	.....	.....	crystalline.....
8	.....	22 <sup>16°</sup>	67 <sup>100°</sup>	insoluble alcohol.....	hexag. plates...
9	.....	50	100	.....	yellow monocl.
10†	.....	0.012 <sup>18°</sup>	s. soluble	insol. HF; sol. HCl.....	reg. octahedra
11 heat	.....	3.2 <sup>15°</sup>	.....	0.06 <sup>15°</sup> , 50% al.; sol. HCl	tetrag. prisms.
12	.....	soluble	soluble	.....	rhombic.....
13	.....	soluble	decomp.	.....	crystals.....
14	.....	0.41 <sup>10°</sup>	21.83 <sup>100°</sup>	soluble NH <sub>4</sub> Cl.....	.....
15	.....	0.90 <sup>0°</sup>	47.71 <sup>100°</sup>	soluble NH <sub>4</sub> Cl.....	tetragonal.....
16 decomp.	.....	164°	370 <sup>100°</sup>	.....	plates.....
17	.....	215.9°	516.4 <sup>100°</sup>	.....	crystals.....
18	.....	.....	.....	.....	.....
19	.....	39.5°	101.1 <sup>100°</sup>	0.012 absolute al.....	reg. octahedra
20	.....	53°	135.5 <sup>100°</sup>	insol. HNO <sub>3</sub> .....	triclinic.....
21	.....	62.83 <sup>19.5°</sup>	.....	.....	hexagonal.....
22	.....	0.0051 <sup>18°</sup>	5 <sup>100°</sup>	sol. HCl.....	.....
23	.....	decomp. to Sr(OH) <sub>2</sub>	.....	s. sol. al.; insol. ether.....	gray white rhombic
24	.....	0.008 <sup>20°</sup>	decomp.	v. sol. a., NH <sub>4</sub> Cl.....	.....
25	.....	0.018 <sup>20°</sup>	decomp.	insol. NH <sub>4</sub> OH.....	crystalline.....
26	.....	270°	291 <sup>18°</sup>	.....	purple regular.
27	.....	insoluble	.....	sol. a., NH <sub>4</sub> salts.....	rhombic plates
28	.....	insoluble	.....	insol. HNO <sub>3</sub> ; sol. hot HCl	rhombic.....
29	.....	0.0114 <sup>18°</sup>	0.0104 <sup>100°</sup>	insol. dil. H <sub>2</sub> SO <sub>4</sub> , al.; s. sol. acids	rhombic.....
30	.....	decomposes	.....	147° conc. H <sub>2</sub> SO <sub>4</sub> .....	.....
31	.....	sol. and dec.	.....	soluble alcohol.....	cubical.....
32	.....	soluble	.....	soluble alcohol.....	reddish cryst.
33	.....	s. soluble	.....	v. soluble H <sub>2</sub> SO <sub>4</sub> .....	crystals.....
34	.....	v. soluble	.....	v. soluble alcohol.....	.....
35	.....	0.71 <sup>16°</sup>	.....	.....	monocl. prisms
36	.....	25 <sup>13°</sup>	57 <sup>100°</sup>	insoluble alcohol.....	monoclinic....
37 444.6°	.....	insoluble	insoluble	partly sol. CS <sub>2</sub> .....	pale yel. amor-
38 444.6°	.....	insoluble	.....	insoluble CS <sub>2</sub> .....	phous

† 2H<sub>2</sub>O gentle heat. § Decomposes at wh. ht. || Decomposes at 160°–170°.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
<b>Sulphur</b>					
1	colloidal S <sub>8</sub> .....	S <sub>8</sub> .....	256.48	.....	.....
2	plastic S <sub>γ</sub> .....	S <sub>8</sub> .....	256.48	1.92	.....
3	monoclinic S <sub>β</sub> .....	S <sub>8</sub> .....	256.48	1.958	119.25°
4	rhombic S <sub>α</sub> .....	S <sub>8</sub> .....	256.48	2.05–2.07°	114.5°
5	chloride mono-.....	S <sub>2</sub> Cl <sub>2</sub> .....	135.02	1.7094†	–80°
6	“ tetra-.....	SCl <sub>4</sub> .....	173.86	.....	–30°
7	bromide.....	S <sub>2</sub> Br <sub>2</sub> .....	224.04	2.6355 <sup>20°</sup>	–46°
8	chloriodide.....	SCl <sub>2</sub> I.....	407.18	.....	decomp.
9	hexafluoride.....	SF <sub>6</sub> .....	146.06	5.03	–55°
10	iodide mono-.....	S <sub>2</sub> I <sub>2</sub> .....	318.06	.....	66.1–66.2
11	monoxytetrachloride } }	S <sub>2</sub> OCl <sub>4</sub> .....	221.92	{ 386 <sup>100°</sup> D 1.656°	decomp.
12	oxide di-.....	SO <sub>2</sub> .....	64.06	{ 2.2639 D 1.43368°	–76.1°
13	“ sesqui-.....	S <sub>2</sub> O <sub>3</sub> .....	112.12	.....	decomp.
14	“ α-tri-.....	SO <sub>3</sub> .....	80.06	{ 2.75 D 1.97 <sup>20°</sup>	14.8°
15	“ β-tri-.....	(SO <sub>3</sub> ) <sub>2</sub> .....	160.12	1.040	50°
16	“ hepta-.....	S <sub>2</sub> O <sub>7</sub> .....	176.12	.....	0°
17	pentoxydichloride.....	S <sub>2</sub> O <sub>5</sub> Cl <sub>2</sub> .....	.....	1.819 <sup>18°</sup>	–39°
18	trioxytetrachloride.....	S <sub>2</sub> O <sub>3</sub> Cl <sub>4</sub> .....	253.92	.....	57°
19	<b>Sulphuric Acid</b> .....	H <sub>2</sub> SO <sub>4</sub> .....	98.08	1.8342 <sup>‡</sup>	10.5°
20	“ “.....	H <sub>2</sub> SO <sub>4</sub> ·H <sub>2</sub> O.....	116.09	1.788 <sup>17°</sup>	8.53°
21	“ “.....	H <sub>2</sub> SO <sub>4</sub> ·2H <sub>2</sub> O.....	134.11	1.665 <sup>0°</sup>	–38.9°
22	“ “ pyro-.....	H <sub>2</sub> S <sub>2</sub> O <sub>7</sub> .....	178.14	1.89	35°
23	“ oxychloride.....	SO <sub>2</sub> Cl <sub>2</sub> .....	134.96	1.66738 <sup>‡</sup>	.....
24	“ oxyfluoride.....	SO <sub>2</sub> F <sub>2</sub> .....	102.06	.....	–120°
<b>Sulphurous</b>					
25	oxybromide.....	SOBr <sub>2</sub> .....	223.98	2.61°	.....
26	oxychloride.....	SOCl <sub>2</sub> .....	118.96	1.6767†	.....
27	oxyfluoride.....	SOF <sub>2</sub> .....	86.06	3.0076	–110°
28	<b>Tantalum</b> .....	Ta.....	183	10.08–10.78	2250°
29	bromide.....	TaBr <sub>5</sub> .....	582.80	.....	.....
30	chloride.....	TaCl <sub>5</sub> .....	360.25	.....	211.3°
31	fluoride.....	TaF <sub>5</sub> .....	278.00	.....	.....
32	nitride.....	Ta <sub>3</sub> N <sub>5</sub> .....	619.20	.....	burns.....
33	oxide di-.....	Ta <sub>2</sub> O <sub>3</sub> .....	215.00	.....	oxidizes.....
34	“ tetra-.....	Ta <sub>2</sub> O <sub>4</sub> .....	430	.....	oxidize.....
35	“ pent-.....	Ta <sub>2</sub> O <sub>5</sub> .....	446.00	7.6	infusible

\* Decomposes at 20°.

† At 0.18 mm.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	444.6°	soluble	.....	insol. NaCl. ....	pale yellow...
2	444.6°	insoluble	.....	insol. CS <sub>2</sub> . ....	citron yel. am.
3	444.6°	insoluble	insoluble	sol. CS <sub>2</sub> , al., CH <sub>3</sub> Cl, C <sub>6</sub> H <sub>6</sub> .	yellow prisms.
4	444.6°	insoluble	insoluble	240°, 181.35° CS <sub>2</sub> . ....	yellow octahed.
5	138°	decomposes	decomposes	sol. CS <sub>2</sub> , C <sub>6</sub> H <sub>6</sub> , al., ether.	yel. red liquid
6	*	decomposes	decomposes	.....	yel. brown liq.
7	54° †	decomposes	decomposes	.....	red
8	.....	decomposes	.....	.....	red yel. prisms
9	-50°	s. soluble	.....	s. sol. al.; sol. KOH. ....	crystals. ....
10	.....	.....	.....	soluble CS <sub>2</sub> . ....	gray black rhb.
11	.....	decomposes	decomposes	.....	deep red liquid
12	-8°	7979 c.c.°	1560 c.c.50°	sol. al., H <sub>2</sub> SO <sub>4</sub> , H.C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> .	.....
13	.....	decomposes	.....	decomp. by al., ether ..	blue green crys.
14	46.2°	decomposes	decomposes	sol. conc. H <sub>2</sub> SO <sub>4</sub> . ....	prismatic crys.
15	.....	decomposes	decomposes	.....	silky needles ..
16	decomp.	decomposes	decomposes	sol. conc. H <sub>2</sub> SO <sub>4</sub> . ....	needles. ....
17	142°	decomposes	decomposes	.....	liquid. ....
18	sublimes	decomposes	decomposes	.....	crystalline. ....
19	†	∞	∞	decomposes alcohol. ....	.....
20	210°-338°	∞	∞	decomposes alcohol. ....	prisms. ....
21	170°-190°	∞	∞	decomposes alcohol. ....	.....
22	decomposes	decomposes	decomposes	decomposes. ....	crystals. ....
23	69.15°	decomposes	.....	sol. glacial acetic acid. ....	liquid. ....
24	-52°	1090°	.....	soluble alkalies. ....	.....
25	68° †	decomposes	.....	.....	orange yellow.
26	78°	decomposes	.....	.....	liquid. ....
27	-30°	decomposes	decomposes	soluble ether, benzine. ....	.....
28	.....	insoluble	insoluble	insol. HCl, HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , sol. HF	blk. crystalline
29	.....	decomposes	.....	.....	yellow crystals
30	242°	decomposes	.....	sol. H <sub>2</sub> SO <sub>4</sub> , abs. alcohol.	pale yel. prisms
31	.....	.....	.....	sol. HF. ....	crystals. ....
32	.....	insoluble	.....	insol. a.; sol. HNO <sub>3</sub> + HF	yellow amorph.
33	.....	insoluble	.....	insoluble acids. ....	brown powder
34	.....	insoluble	.....	insoluble acids. ....	dark gray. ....
35	.....	insoluble	.....	insol. a.; sol. HF. ....	rhomb. prisms

† Decomposes at 40°.

† At 40 mm.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Tantalum sulphide.	Ta <sub>2</sub> S <sub>4</sub> .....	494.26	.....	oxidizes
2	Tartaric Acid .....	H <sub>2</sub> C <sub>4</sub> H <sub>4</sub> O <sub>6</sub> .....	150.05	1.7549	decomp.
3	Telluretted Hydrogen	H <sub>2</sub> Te.....	129.62	4.39 D	-48°
4	Telluric Acid.....	H <sub>2</sub> TeO <sub>4</sub> .....	193.62	3.425 <sup>18.80</sup>	dec. 160°
5	" " α	H <sub>2</sub> TeO <sub>4</sub> .2H <sub>2</sub> O.....	229.65	3.053	2H <sub>2</sub> O, 130°
6	" " β	H <sub>2</sub> TeO <sub>4</sub> .2H <sub>2</sub> O.....	229.65	3.071	2H <sub>2</sub> O, 130°
7	Tellurium.....	Te.....	127.6	6.015 <sup>200</sup>	446°
8	".....	Te.....	127.6	6.27	452°
9	bromide di-.....	TeBr <sub>2</sub> .....	287.52	.....	280°
10	bromide tetra-.....	TeBr <sub>4</sub> .....	447.44	4.31 <sup>14</sup>	380°
11	chloride di-.....	TeCl <sub>2</sub> .....	198.50	6.89 D	175°
12	" tetra-.....	TeCl <sub>4</sub> .....	269.40	9.2 D	214°
13	iodide di-.....	TeI <sub>2</sub> .....	381.54	.....	.....
14	" tetra-.....	TeI <sub>4</sub> .....	635.48	.....	.....
15	nitrate.....	4TeO <sub>3</sub> .N <sub>2</sub> O <sub>5</sub> .1½H <sub>2</sub> O.....	773.50	.....	.....
16	oxide mon-.....	TeO.....	143.60	.....	oxidizes
17	" di-.....	TeO <sub>2</sub> .....	159.60	5.89 <sup>90</sup>	dull red- ness
18	" tri-.....	TeO <sub>3</sub> .....	175.60	5.0704 <sup>14.50</sup>	decomp.
19	" thio-.....	TeSO <sub>3</sub> .....	207.66	.....	30°
20	sulphite.....	(TeO <sub>2</sub> ) <sub>2</sub> SO <sub>3</sub> .....	309.26	.....	.....
21	Tellurous Acid α.....	H <sub>2</sub> TeO <sub>3</sub> .....	177.62	3.035	dec. 40°
22	" " β	H <sub>2</sub> TeO <sub>3</sub> .....	177.62	3.071	.....
23	Terbium.....	Tb.....	160.	.....	.....
24	oxide.....	Tb <sub>2</sub> O <sub>3</sub> .....	368.00	.....	.....
25	Thallium.....	Tl.....	204.1	11.85	301.7°
26	acetate.....	TlC <sub>2</sub> H <sub>3</sub> O <sub>2</sub> .....	263.12	.....	.....
27	bromide mono-.....	TlBr.....	284.06	7.540 <sup>21.70</sup>	458°
28	" tri-.....	TlBr <sub>3</sub> .....	443.98	.....	decomp.
29	" di-.....	TlBr <sub>2</sub> .....	364.02	.....	.....
30	carbonate.....	Tl <sub>2</sub> CO <sub>3</sub> .....	468.20	7.06-7.16	272°
31	chlorate.....	TlClO <sub>3</sub> .....	287.55	5.047 <sup>80</sup>	.....
32	chloride mono-.....	TlCl.....	239.55	7.02	451°
33	" sesqui-.....	TlCl <sub>3</sub> .....	514.55	5.9	400°-500°
34	" tri-.....	TlCl <sub>3</sub> .....	310.45	.....	25°
35	" ".....	TlCl <sub>3</sub> .4H <sub>2</sub> O.....	328.47	.....	36°-37°
36	chloroplatinate.....	Tl <sub>2</sub> PtCl <sub>6</sub> .....	815.7	5.76 <sup>170</sup>	.....
37	chromate.....	Tl <sub>2</sub> CrO <sub>4</sub> .....	524.3	.....	.....
38	cyanide.....	TlCN.....	230.14	.....	decomp.
39	dichromate.....	Tl <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> .....	624.40	.....	.....

\* Decomposes at 180°.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1					
2		115°	343 <sup>100</sup>	25.6 <sup>15</sup> al.; sol. ether...	monocl. prisms
3	0°	soluble		soluble alk.	gas.
4		insoluble	s. soluble	insoluble cold a., alk.	
5		s. soluble	soluble	sol. a., alk.; insol. al.	regular octah.
6		s. soluble	soluble	sol. a., alk.; insol. al.	monocl. prisms
7	1390°	insoluble	insoluble	{ sol. conc. H <sub>2</sub> SO <sub>4</sub> , KCN,	amorphous
8	1390°	insoluble	insoluble	{ HNO <sub>3</sub> , aq. r., KOH;	rhombohedra
				{ insol. CS <sub>2</sub>	{ dles
9	339°	decomposes			steel gray nee-
10	420°	v. soluble			orange.
11	327°	decomposes		decomposed by HCl	black crystals.
12	414°	decomposes	soluble	sol. dil. HCl	yel. crystalline
13		insoluble	insoluble		black crystals.
14		s. soluble	decomp.	soluble HI	gray crystals.
15		decomposes		soluble HNO <sub>3</sub>	orthorhombic
16		insoluble	insoluble	sol. HCl, H <sub>2</sub> SO <sub>4</sub>	black amorph.
17	>700°	0.00067		sol. acids, alk.	yel. octahedral
					orthorhomb.
18		insoluble	insoluble	insol. a.; sol. hot KOH	orange crystal.
19	*	decomp.		soluble H <sub>2</sub> SO <sub>4</sub>	red amorphous
20					
21		s. soluble	decomp.	soluble acids, alk.	octahedral
22					monocl. prisms
23					
24				soluble acids	orange amorph.
25	1600°-1800°	insoluble	insoluble	sol. HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub>	bluish white
26		v. soluble		v. soluble alcohol	silky needles
27		0.0466 <sup>20</sup>	0.869 <sup>68.5</sup>		
28		soluble	v. soluble	v. soluble alcohol	yellow needles
29		decomp.	decomp.		yellow needles
30		4.02 <sup>15.5</sup>	27.21 <sup>100</sup>	insol. al., ether	monoclinic
31					
32	708°-719°	0.2°	1.6 <sup>100</sup>	s. sol. HCl; insol. al., NH <sub>3</sub>	regular
33	decomp.	0.26 <sup>15</sup>	1.9 <sup>100</sup>		yel. hexagonal
34	decomp.	v. soluble			hexag. plates
35		86.2 <sup>17</sup>	decomp.		needles
36		insoluble		[acids, alk.	pale orange
37		insoluble		insol. H.C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ; s. sol.	yellow
38		16.8 <sup>28.5</sup>			tablets
39		insoluble		decomp. by acids	red crystalline

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	<b>Thalliumferrocyanide</b>	Tl <sub>4</sub> Fe(CN) <sub>6</sub> ·2H <sub>2</sub> O...	1064.6	4.641	.....
2	fluoride mono-	TlF.....	223.10	.....	.....
3	“ tri-	TlF <sub>3</sub> .....	261.1	.....	.....
4	fluosilicate.....	Tl <sub>2</sub> SiF <sub>6</sub> ·2H <sub>2</sub> O.....	586.63	.....	.....
5	hydroxide (-ous)	TlOH.....	221.11	.....	dec. 100°
6	“ (-ic)	TlO.OH.....	237.11	.....	H <sub>2</sub> O, 115°
7	“ (-ic)	Tl(OH) <sub>3</sub> .....	255.12	.....	.....
8	iodide mono-	TlI.....	331.07	7.072 <sup>15.5°</sup>	439°
9	“ sesqui-	Tl <sub>2</sub> I <sub>3</sub> .....	789.11	.....	.....
10	“ tri-	TlI <sub>3</sub> .....	585.01	.....	.....
11	nitrate (-ous)	TlNO <sub>3</sub> .....	266.14	5.55	205°
12	“ (-ic)	Tl(NO <sub>3</sub> ) <sub>3</sub> .....	390.22	.....	.....
13	oxide (-ous)	Tl <sub>2</sub> O.....	424.20	.....	300°
14	“ (-ic)	Tl <sub>2</sub> O <sub>3</sub> .....	456.20	5.56 <sup>60°</sup>	760°
15	perchlorate.....	TlClO <sub>4</sub> .....	303.55	4.89	501°
16	phosphate.....	Tl <sub>3</sub> PO <sub>4</sub> .....	707.30	6.89 <sup>100°</sup>	.....
17	selenate.....	Tl <sub>2</sub> SeO <sub>4</sub> .....	551.4	7.019 <sup>180°</sup>	.....
18	sulphate (-ous)	Tl <sub>2</sub> SO <sub>4</sub> .....	504.26	6.77	632°
19	“ acid.....	TlHSO <sub>4</sub> .....	301.17	.....	115°–120°
20	“ (-ic)	Tl <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> ·7H <sub>2</sub> O.....	822.49	.....	6H <sub>2</sub> O, 200°
21	selenide.....	Tl <sub>2</sub> Se.....	487.40	.....	340°
22	sulphide (-ous)	Tl <sub>2</sub> S.....	440.26	8.0	fusible
23	“ (-ic)	Tl <sub>2</sub> S <sub>3</sub> .....	504.38	.....	12°
24	sulphite (-ous)	Tl <sub>2</sub> SO <sub>3</sub> .....	488.26	6.427 <sup>20°</sup>	.....
25	sulphocyanate.....	TlCNS.....	262.20	.....	.....
26	<b>Thorium</b>	Th.....	232.5	11.00 <sup>14</sup>	.....
27	“	Th.....	232.5	11.23	.....
28	boride.....	ThB <sub>4</sub> .....	276.5	7.5 <sup>15°</sup>	.....
29	“	ThB <sub>6</sub> .....	298.5	6.4 <sup>15°</sup>	.....
30	bromide.....	ThBr <sub>4</sub> .....	552.34	5.62	.....
31	carbide.....	ThC <sub>2</sub> .....	256.50	8.96 <sup>18°</sup>	burns
32	carbonate.....	Th(CO <sub>3</sub> ) <sub>2</sub> .....	352.50	.....	.....
33	chloride.....	ThCl <sub>4</sub> .....	374.30	4.59	820°
34	fluoride.....	ThF <sub>4</sub> ·4H <sub>2</sub> O.....	380.56	.....	H <sub>2</sub> O, 100 †
35	hydroxide.....	Th(OH) <sub>4</sub> .....	300.53	.....	.....
36	iodide.....	ThI <sub>4</sub> .....	740.38	.....	.....
37	nitrate.....	Th(NO <sub>3</sub> ) <sub>4</sub> ·12H <sub>2</sub> O.....	696.89	.....	.....
38	oxalate.....	Th(C <sub>2</sub> O <sub>4</sub> ) <sub>2</sub> .....	418.50	4.637 <sup>16°</sup>	decomp.
39	oxide di-	ThO <sub>2</sub> .....	264.5	9.876 <sup>15°</sup>	infusible
40	“ per-	Th <sub>2</sub> O <sub>7</sub> .....	577.00	.....	.....

\* This form is stable below 72.8°. Between 72.8° and 142.5° rhombohedral crystals are formed and above 142.5° regular crystals.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	0. 37 <sup>18°</sup>		3. 93 <sup>101°</sup>		yellow triclinic
2	80 <sup>15°</sup>		v. soluble	s. sol. alcohol	reg. octahedra
3	insoluble			insol. cold HCl	olive green
4	v. soluble				reg. octahedra
5	v. soluble			soluble alcohol	pale yel. prisms
6	insoluble			sol. a., NH <sub>4</sub> salts; insol.	yellow crystals
7	insoluble			v. sol. dil. acids	brown hexag.
8	800°–806°	0. 0064 <sup>20°</sup>	0. 125 <sup>100°</sup>	insol. al., KI; sol. aq. r.	yellow regular
9	insoluble			s. sol. alcohol	black needles
10				soluble ether	brown needles
11	10. 6 <sup>15°</sup>		588 <sup>107°</sup>	insoluble alcohol	rhomb. prisms*
12	soluble				crystals
13	v. soluble			soluble alcohol	black
14	decomp.	insoluble	insoluble	soluble acids; insol. alk.	d. violet hexag.
15	decomp.				
16	0. 5 <sup>15°</sup>		0. 67 <sup>100</sup>	insol. al.; sol. NH <sub>4</sub> salts.	needles
17	s. soluble		soluble	insoluble al., ether	prism. needles
18	47. 4 <sup>15°</sup>		18. 5 <sup>100</sup>		rhomb. prisms.
19					
20	decomp.	decomposes		soluble dil. H <sub>2</sub> SO <sub>4</sub>	leaflets
21	insoluble			insoluble warm acids	gray crystals
22	decomp.	0. 0379 <sup>20°</sup>	s. soluble	sol. a.; insol. alk.	blue black tetr.
23	decomp.	insoluble	insoluble	soluble H <sub>2</sub> SO <sub>4</sub>	black amorph.
24	3. 34 <sup>15°</sup>		v. soluble	insoluble alcohol	crystals
25	0. 315 <sup>20°</sup>			insoluble alcohol	needles
26	insoluble		insoluble	{ sol. HCl., H <sub>2</sub> SO <sub>4</sub> ; s. sol.	gray amorph.
27	insoluble		insoluble	{ HNO <sub>3</sub> , insol. alk.	crystalline
28	insoluble		insoluble	sol. HNO <sub>3</sub> , conc. HCl	prisms
29	insoluble		insoluble	sol. HNO <sub>3</sub> , conc. HCl	violet amorph.
30	725° †	soluble			crystals
31	decomposes			[Na <sub>2</sub> CO <sub>3</sub>	
32	insoluble		decomp.	insol. CO <sub>2</sub> aq.; sol. conc.	
33	v. soluble			sol. KCl, al., ether	needles
34	insoluble			insoluble HF	crystalline
35	insoluble			soluble a.; insol. alk.	gelatinous
36	soluble				
37	v. soluble			v. soluble alcohol	plates
38	insoluble			sol. hot (NH <sub>4</sub> ) <sub>2</sub> C <sub>2</sub> O <sub>4</sub> aq.	
39	insoluble			sol. hot H <sub>2</sub> SO <sub>4</sub>	regular
40	insoluble				

† In vacuo.

‡ Loses 2H<sub>2</sub>O at 140°–200°.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1 Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
	<b>Thorium</b>				
1	platinocyanide . . .	Th(Pt(CN) <sub>4</sub> ) <sub>2</sub> .16H <sub>2</sub> O	1118.7	2.460	.....
2	sulphate . . . . .	Th(SO <sub>4</sub> ) <sub>2</sub> . . . . .	424.62	4.2252 <sup>17°</sup>	.....
3	" . . . . .	Th(SO <sub>4</sub> ) <sub>2</sub> .9H <sub>2</sub> O . . . . .	586.76	2.766 <sup>16°</sup>	9H <sub>2</sub> O, 400°
4	sulphide . . . . .	ThS <sub>2</sub> . . . . .	296.62	8.29	.....
5	<b>Thulium</b> . . . . .	Tm . . . . .	171.	.....	.....
6	<b>Tin *</b> . . . . .	Sn . . . . .	119.0	6.53-6.56	sta. > 170°
7	" . . . . .	Sn . . . . .	119.0	7.2984 <sup>15°</sup>	232°
8	" . . . . .	Sn . . . . .	119.0	5.8466 <sup>15°</sup>	sta. < 20°
9	<b>Titanic Acid</b> . . . . .	H <sub>2</sub> TiO <sub>3</sub> . . . . .	98.12	.....	.....
10	<b>Titanium</b> . . . . .	Ti . . . . .	48.1	3.543	3000°
11	bromide tetra- . . . . .	TiBr <sub>4</sub> . . . . .	367.94	2.6	39°
12	carbonitride . . . . .	Ti <sub>2</sub> (CN) <sub>4</sub> . . . . .	344.66	5.28	.....
13	chloride di- . . . . .	TiCl <sub>2</sub> . . . . .	119.0	.....	.....
14	" tri- . . . . .	Ti <sub>2</sub> Cl <sub>3</sub> . . . . .	308.90	.....	dec. 440°
15	" tetra- . . . . .	TiCl <sub>4</sub> . . . . .	189.90	1.7604†	- 25°
16	fluoride tri- . . . . .	Ti <sub>2</sub> F <sub>6</sub> . . . . .	210.20	.....	.....
17	" tetra- . . . . .	TiF <sub>4</sub> . . . . .	124.10	2.798 <sup>20.5°</sup>	284°-287°
18	iodide tetra- . . . . .	TiI <sub>4</sub> . . . . .	555.98	.....	150°
19	nitrate . . . . .	5TiO <sub>2</sub> .N <sub>2</sub> O <sub>5</sub> .6H <sub>2</sub> O . . . . .	616.68	.....	.....
20	oxalate . . . . .	Ti <sub>2</sub> (C <sub>2</sub> O <sub>4</sub> ) <sub>3</sub> .10H <sub>2</sub> O . . . . .	540.36	.....	.....
21	oxide sesqui- . . . . .	Ti <sub>2</sub> O <sub>3</sub> . . . . .	144.20	.....	oxidizes
22	" di- . . . . .	TiO <sub>2</sub> . . . . .	80.10	3.75-4.25	1560°
23	" per- . . . . .	TiO <sub>3</sub> . . . . .	96.10	.....	.....
24	sulphate . . . . .	Ti <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> . . . . .	384.38	.....	.....
25	<b>Tungsten</b> . . . . .	W . . . . .	184.	18.77	1700°
26	bromide di- . . . . .	WBr <sub>2</sub> . . . . .	343.92	.....	dec. 400°
27	" penta- . . . . .	WBr <sub>5</sub> . . . . .	583.80	.....	276°
28	carbide . . . . .	W <sub>2</sub> C . . . . .	380.	16.06 <sup>18°</sup>	.....
29	chloride di- . . . . .	WCl <sub>2</sub> . . . . .	254.90	.....	.....
30	" tetra- . . . . .	WCl <sub>4</sub> . . . . .	325.80	.....	decomp.
31	" penta- . . . . .	WCl <sub>5</sub> . . . . .	361.25	.....	248°
32	" hexa- . . . . .	WCl <sub>6</sub> . . . . .	396.70	13.3350° D.	275°
33	dioxydibromide . . . . .	WO <sub>2</sub> Br <sub>2</sub> . . . . .	375.92	.....	red heat
34	dioxydichloride . . . . .	WO <sub>2</sub> Cl <sub>2</sub> . . . . .	286.90	.....	266°
35	iodide . . . . .	WI <sub>2</sub> . . . . .	437.94	6.9 <sup>18°</sup>	.....
36	oxide di- (brown) . . . . .	WO <sub>2</sub> . . . . .	216.00	12.11	.....
37	" tri- . . . . .	WO <sub>3</sub> . . . . .	232.00	7.16	red heat
38	oxytetrabromide . . . . .	WOBr <sub>4</sub> . . . . .	519.84	.....	277°

\* For salts of Tin see "Stannic" and "Stannous."



Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (A.), Alkalies (alk.), etc.	
1		s. soluble	soluble		[thorhombic
2		0.74°	6.76 <sup>55°</sup>		yel. green or-
3		0.97°	9.41 <sup>55°</sup>		monoclinic...
4		insoluble	insoluble	s. sol. a.; sol. hot aq. r.	
5		insoluble	insoluble	{ sol. HCl, H <sub>2</sub> SO <sub>4</sub> , dil.	rhombic
6		insoluble	insoluble	{ HNO <sub>3</sub> , aq. r., hot	white tetrag.
7	1450°-1600°	insoluble	insoluble	{ KOH	gray
8					
9		insoluble	insoluble	insol. al.; sol. a., alk.	
10		insoluble	decomp.	soluble acids.	d. gray amorp.
11	230°	decomposes			orange cryst.
12	white heat	insoluble	insoluble	insol. a., sol. HNO <sub>3</sub> + HF	reddish octah.
13		decomposes		insol. CS <sub>2</sub> , ether, CHCl <sub>3</sub> .	black
14		soluble		v. sol. al.; insol. ether; sol. HCl	dark violet
15	136.4°	decomposes		sol. dil. HCl	
16		soluble		[H <sub>2</sub> SO <sub>4</sub>	purple red
17	>400°	decomposes		insol. ether; sol. conc.	
18	360°	v. soluble			reddish octah.
19		soluble			plates.
20		soluble	soluble	insoluble alcohol, ether.	yellow prisms.
21				soluble H <sub>2</sub> SO <sub>4</sub> , HF	black amorph.
22		insoluble		sol. conc. H <sub>2</sub> SO <sub>4</sub> , alk.	white to black tetrag or rhom.
23				soluble acids.	yellow
24		insoluble	insoluble	sol. dil. a.; insol. al. ether	green crystals.
25		insoluble	insoluble	sol. HNO <sub>3</sub> , aq. r., conc. hot	gray to black.
26		decomposes		[KOH	bluish black.
27	333°	decomposes		sol. caustic alkalies.	vio.-br. need.
28		insoluble		s. sol. HCl, H <sub>2</sub> SO <sub>4</sub> ; sol.	
29		decomposes		[HNO <sub>3</sub>	gray amorph.
30		decomposes			gray crystals.
31	275.6°	decomposes		s. soluble CS <sub>2</sub>	black needles
32	346.7°		dec. 60°	v. soluble CS <sub>2</sub> , POCl <sub>3</sub> .	steel-blue reg.
33	decomposes				red prisms.
34		soluble	decomp.	sol. alk. and NH <sub>4</sub> OH.	yellow tablets.
35					greenish
36		insoluble		soluble conc. KOH, a.	brown rhombic
37		insoluble		insol. a.; sol. alk.	yellow rhombic
38	327°	decomposes			black needles

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
<b>Tungsten</b>					
1	oxytetrachloride...	WOCl <sub>4</sub> .....	341.80	.....	208°-210°
2	phosphide.....	W <sub>2</sub> P.....	399.00	5.207	.....
3	".....	WP.....	215	8.5	.....
4	".....	WP <sub>2</sub> .....	246	5.8	decomp.
5	sulphide di.....	WS <sub>2</sub> .....	248.10	7.51 <sup>10</sup>	.....
6	" tri.....	WS <sub>3</sub> .....	280.18	.....	.....
7	Tungstic Acid.....	H <sub>2</sub> WO <sub>4</sub> .....	250.02	.....	½H <sub>2</sub> O, 100°
8	" " meta.....	H <sub>2</sub> W <sub>2</sub> O <sub>11</sub> .....	946.02	.....	.....
9	Uranic Acid.....	H <sub>2</sub> UO <sub>4</sub> .....	304.52	5.93 <sup>15</sup>	H <sub>2</sub> O, 250°-300°
10	Uranium.....	U.....	238.5	18.685 <sup>12</sup>	800°
11	bromide tri.....	UBr <sub>3</sub> .....	478.38	.....	.....
12	" tetra.....	UBr <sub>4</sub> .....	558.34	4.838 <sup>12</sup>	.....
13	carbide.....	U <sub>2</sub> C <sub>3</sub> .....	513.0	11.28 <sup>18</sup>	.....
14	chloride tri.....	UCl <sub>3</sub> .....	344.85	.....	.....
15	" tetra.....	UCl <sub>4</sub> .....	380.30	.....	.....
16	" penta.....	UCl <sub>5</sub> .....	415.75	.....	dec. 120°
17	fluoride tetra.....	UF <sub>4</sub> .....	314.50	.....	decomp.
18	oxide di.....	UO <sub>2</sub> .....	270.50	10.95	oxidizes
19	" (-oso, -ic)....	U <sub>3</sub> O <sub>8</sub> .....	843.50	7.31	decomp.
20	" tri.....	UO <sub>3</sub> .....	286.50	5.02-5.26	decomp.
21	" per.....	UO <sub>4</sub> ·2H <sub>2</sub> O.....	338.53	.....	.....
22	sulphate (-ous)....	U(SO <sub>4</sub> ) <sub>2</sub> ·4H <sub>2</sub> O.....	502.68	.....	4H <sub>2</sub> O, 300°
23	sulphide di.....	US <sub>2</sub> .....	302.62	.....	oxidizes
24	" sesqui.....	U <sub>2</sub> S <sub>3</sub> .....	573.18	.....	burns
25	Uranyl acetate. [ate	UO <sub>2</sub> (C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> ·2H <sub>2</sub> O.....	424.58	.....	2H <sub>2</sub> O, 275°
26	ammonium carbon-	UO <sub>2</sub> CO <sub>3</sub> ·2(NH <sub>4</sub> ) <sub>2</sub> CO <sub>3</sub> .....	522.77	.....	decomp.
27	chloride.....	UO <sub>2</sub> Cl <sub>2</sub> .....	341.40	.....	fusible
28	nitrate.....	UO <sub>2</sub> (NO <sub>3</sub> ) <sub>2</sub> ·6H <sub>2</sub> O.....	502.68	2.807	59.5°
29	phosphate. . . [ate	UO <sub>2</sub> (HPO <sub>4</sub> ) <sub>2</sub> ·4H <sub>2</sub> O.....	534.58	.....	.....
30	potassium carbon-	UO <sub>2</sub> CO <sub>3</sub> ·2K <sub>2</sub> CO <sub>3</sub> .....	607.10	.....	CO <sub>2</sub> , 300°
31	sodium carbonate .	UO <sub>2</sub> CO <sub>3</sub> ·2Na <sub>2</sub> CO <sub>3</sub> .....	542.70	.....	.....
32	sulphate.....	UO <sub>2</sub> SO <sub>4</sub> ·3H <sub>2</sub> O.....	420.61	3.280 <sup>16.5</sup>	.....
33	sulphide.....	UO <sub>2</sub> S.....	302.56	.....	dec. 40-50
34	Vanadic Acid meta-	HVO <sub>3</sub> .....	100.21	.....	.....
35	" " pyro.....	H <sub>4</sub> V <sub>2</sub> O <sub>7</sub> .....	218.43	.....	.....
36	Vanadium.....	V.....	51.2	5.87 <sup>15</sup>	1680°

\* Burns at 150°-170°.

† Very volatile.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	227.5°	.....	.....	soluble CS <sub>2</sub> .....	red needles...
2	.....	.....	.....	insol. a.; sol. fused Na <sub>2</sub> CO <sub>3</sub> +NaNO <sub>3</sub>	dark gray pris.
3	.....	insoluble	.....	insol. alk., HCl; sol. HNO <sub>3</sub> +HF	gray prisms...
4	.....	insoluble	insoluble	insol. al., ether; sol. HNO <sub>3</sub> +HF	black crystals.
5	.....	.....	.....	oxidized by HNO <sub>3</sub>	dark gray crys.
6	.....	s. soluble	soluble	sol. alk. sulphides, alk.	black powder.
7	.....	insoluble	s. soluble	sol. alkalies.....	yellow.....
8	.....	soluble	.....	.....	yellow octahed.
9	.....	insoluble	.....	sol. a., alk. carbonates; insol. alk.	yellow powder
10*	.....	insoluble	insoluble	sol. a. insol. alk.....	white crystals.
11†	.....	soluble	.....	.....	d. brown need.
12‡	.....	soluble	.....	.....	black leaflets.
13	.....	decomp.	decomp.	soluble acids.....	crystalline...
14	.....	v. soluble	.....	.....	brownish red.
15	red heat	v. soluble	decomp.	soluble NH <sub>4</sub> Cl.....	dark green reg.
16	.....	sol. and dec.	.....	.....	dark needles...
17	.....	insoluble	.....	insol. dil. a. sol. conc. a.	green powder.
18	.....	insoluble	insoluble	sol. HNO <sub>3</sub> , conc. H <sub>2</sub> SO <sub>4</sub>	black octahed.
19	.....	.....	.....	sol. HNO <sub>3</sub> , conc. H <sub>2</sub> SO <sub>4</sub>	olive gr. pow..
20	.....	.....	.....	.....	yellow powder
21	.....	hygroscopic	.....	decomp by HCl.....	yellow crystals
22	.....	decomposes	.....	soluble dil. acids.....	green monocl.
23	.....	.....	.....	sol. conc. HCl.....	grayish bl. crys.
24	.....	.....	.....	s.sol.HCl; sol.conc.HNO <sub>3</sub>	gray black...
25	.....	soluble	decomp.	soluble alcohol.....	yellow monocl.
26	515°	.....	decomp.	sol. (NH <sub>4</sub> ) <sub>2</sub> CO <sub>3</sub> aq., SO <sub>2</sub> aq.	yellow crystals
27	decomp.	soluble	soluble	sol. alcohol, ether.....	yellow crystals
28	118°	200	v. soluble	s. soluble alcohol.....	yellow rhombic
29	.....	insoluble	insoluble	insol. acetic acid.....	yellow rhombic
30	.....	7.415°	decomp.	insoluble alcohol.....	yellow crystals
31	.....	soluble	.....	insoluble alcohol.....	yellow crystals
32	16015.5°	.....	220100°	4 alcohol; sol. H <sub>2</sub> SO <sub>4</sub> ...	yellow crystals
33	.....	s. soluble	.....	sol. al., conc. HCl.....	brown.....
34	.....	s. soluble	soluble	insol. al.; sol.alk., NH <sub>3</sub> aq.	yellow scales..
35	.....	s. soluble	.....	insol. al.; sol. NH <sub>3</sub> aq.	brown amorph.
36	.....	insoluble	insoluble	sol. HNO <sub>3</sub> , HF, H <sub>2</sub> SO <sub>4</sub>	light gray crys.

† Volatile at red heat.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point. °C.
<b>Vanadium</b>					
1	bromide tri-.....	VBr <sub>3</sub> .....	291.08	.....	oxidizes
2	carbide.....	VC.....	63.2	5.36	.....
3	chloride di-.....	VCl <sub>2</sub> .....	122.10	3.23 <sup>18°</sup>	.....
4	“ tri-.....	VCl <sub>3</sub> .....	157.55	3.00 <sup>18°</sup>	oxidizes
5	“ tetra-.....	VCl <sub>4</sub> .....	193.00	1.8653 <sup>†</sup>	< - 18°
6	fluoride tri-.....	VF <sub>3</sub> ·3H <sub>2</sub> O.....	162.25	.....	3.H <sub>2</sub> O, 130
7	oxide di-.....	V <sub>2</sub> O <sub>3</sub> .....	134.40	3.64	burns
8	“ tri-.....	V <sub>2</sub> O <sub>3</sub> .....	150.40	4.72 <sup>16°</sup>	infusible
9	“ tetr-.....	V <sub>2</sub> O <sub>4</sub> .....	166.40	.....	infusible
10	“ pent-.....	V <sub>2</sub> O <sub>5</sub> .....	182.40	3.52 <sup>20°</sup>	658°
11	oxydibromide.....	VOBr <sub>2</sub> .....	227.12	.....	dec. 180°
12	oxytribromide.....	VOBr <sub>3</sub> .....	307.08	2.9325 <sup>14.5°</sup>	130°-136°
13	oxymonochloride.....	VOCl.....	102.65	.....	.....
14	didioxymonochlo-.....	V <sub>2</sub> O <sub>2</sub> Cl.....	169.85	.....	.....
15	oxydichloride. [ride.....	VOCl <sub>2</sub> .....	138.10	2.88 <sup>13°</sup>	.....
16	oxytrichloride.....	VOCl <sub>3</sub> .....	173.55	1.836 <sup>17.5°</sup>	< - 15°
17	silicide.....	VSi <sub>2</sub> .....	108.0	4.42	†
18	“.....	V <sub>2</sub> Si.....	130.8	.....	†
19	sulphide di-.....	V <sub>2</sub> S <sub>2</sub> .....	166.52	4.2-4.4	oxidizes.
20	“ tri-.....	V <sub>2</sub> S <sub>3</sub> .....	198.55	3.7-4.0	oxidizes
21	“ penta-.....	V <sub>2</sub> S <sub>5</sub> .....	262.70	3.0	oxidizes.
22	sulphate.....	(VO) <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	422.58	.....	.....
23	<b>Xenon</b> .....	Xe.....	128.	{ 63.5 D 4.422 A.	- 140°
24	<b>Ytterbium</b> .....	Yb.....	173.0	.....	.....
25	acetate.....	Yb(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>3</sub> ·2H <sub>2</sub> O.....	422.13	2.09	4H <sub>2</sub> O, 100°
26	oxalate.....	Yb <sub>2</sub> (C <sub>2</sub> O <sub>4</sub> ) <sub>3</sub> ·10H <sub>2</sub> O.....	790.16	2.644	.....
27	oxide.....	Yb <sub>2</sub> O <sub>3</sub> .....	394.00	9.175	infusible
28	“ hydrated.....	Yb <sub>2</sub> O <sub>3</sub> ·6H <sub>2</sub> O.....	502.10	.....	.....
29	selenate.....	Yb <sub>2</sub> (SeO <sub>4</sub> ) <sub>3</sub> ·8H <sub>2</sub> O.....	919.73	3.49	.....
30	selenite.....	Yb <sub>2</sub> (SeO <sub>3</sub> ) <sub>3</sub> .....	717.60	.....	.....
31	sulphate.....	Yb <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	634.18	3.62	dec. 900°
32	“.....	Yb <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> ·8H <sub>2</sub> O.....	778.31	3.286 <sup>20.6°</sup>	.....
33	<b>Yttrium</b> .....	Yt.....	89.0	3.80 <sup>15°</sup>	.....
34	bromide.....	YtBr <sub>3</sub> .....	328.88	.....	.....
35	“.....	YtBr <sub>3</sub> ·9H <sub>2</sub> O.....	491.02	.....	.....
36	carbonate.....	Yt <sub>2</sub> (CO <sub>3</sub> ) <sub>3</sub> ·3H <sub>2</sub> O.....	412.05	.....	.....
37	chloride.....	YtCl <sub>3</sub> .....	195.35	.....	.....
38	“.....	YtCl <sub>3</sub> ·6H <sub>2</sub> O.....	303.45	2.575	dec. 100°
39	fluoride.....	2YtF <sub>3</sub> ·H <sub>2</sub> O.....	310.02	.....	.....

\* At 100 mm. Decomposes at 180°.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a), Alkalies (alk.), etc.	
1		soluble			gray b. amor-
2					[phous
3		soluble	soluble	sol. HNO <sub>3</sub> .	apple gr. hex.
4		soluble		sol. alcohol, ether.	pink tablets.
5	154°	soluble		sol. alcohol, ether.	red liquid.
6		soluble	v. soluble	insol. ab. alcohol	rhombohedra.
7		insoluble	insoluble	soluble dilute acids	light gray crys.
8		s. soluble	soluble	sol. HF, HCl, hot conc.	black crystals.
9		insoluble		soluble a., alk. . . [H <sub>2</sub> SO <sub>4</sub>	blue crystals.
10		0.82°		soluble conc. a., alk. . .	yellow to red
11		soluble			brown [rhomb.
12	*	soluble			red liquid.
13		insoluble		v. soluble HNO <sub>3</sub> .	brown powder
14		insoluble		soluble HNO <sub>3</sub> .	yellow cryst.
15		decomp.		soluble dil. HNO <sub>3</sub> .	grass green tab.
16	127.19°	v. soluble		soluble alcohol.	yellow liquid.
17		insoluble	insoluble	insol. al., ether, benzine	metallic prisms
18		insoluble	insoluble	a.; sol. HF. . . [HNO <sub>3</sub>	silvery prisms.
19				sol. hot conc. H <sub>2</sub> SO <sub>4</sub> .	black plates
20				sol. alk. sulphides, alk.	dark plates
21				sol. alk. sulphides, alk.	black
22		v. soluble	decomp.	soluble alcohol.	blue
23	-109.1°				
24					
25		v. soluble	v. soluble		hexag. plates
26		insoluble		s. soluble dilute acids	crystalline
27		insoluble		soluble hot dil. acids	
28		insoluble		v. sol. acids, KOH insol.	gelatinous
29		decomp.	soluble	. . . [NH <sub>3</sub> , aq.	hexag. plates
30		insoluble			
31		4.42°	4.67 <sup>100</sup> °		
32		soluble	s. soluble		prisms
33		sl. decomp.	decomp.	v. sol. dil. a., hot KOH	grayish black
34		v. soluble		sol. al.; insol. ether	
35		v. soluble		sol. al.; insol. ether	tablets
36		insoluble		s. sol. CO <sub>2</sub> , aq.; sol.	
37		v. soluble		. . . . . [(NH <sub>4</sub> ) <sub>2</sub> CO <sub>3</sub> , aq.	plates
38		v. soluble	v. soluble	sol. al.; insol. ether	rhombic prisms
39		insoluble		s. soluble acids	gelatinous

† Melts in electric arc.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Yttrium hydroxide..	Yt(OH) <sub>3</sub> .....	140.02	.....	decomp.
2	iodide.....	YtI <sub>3</sub> .....	469.91	.....	.....
3	nitrate.....	Yt(NO <sub>3</sub> ) <sub>3</sub> .4H <sub>2</sub> O....	347.18	2.682	.....
4	".....	Yt(NO <sub>3</sub> ) <sub>3</sub> .6H <sub>2</sub> O....	383.22	.....	decomp.
5	oxalate.....	Yt <sub>2</sub> (C <sub>2</sub> O <sub>4</sub> ) <sub>3</sub> .9H <sub>2</sub> O....	604.14	.....	decomp.
6	oxide.....	Yt <sub>2</sub> O <sub>3</sub> .....	226.00	5.046	.....
7	sulphate.....	Yt <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .....	466.18	2.612	dec. 1000°
8	".....	Yt <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .8H <sub>2</sub> O....	610.31	2.558	8H <sub>2</sub> O, 450°
9	Zinc.....	Zn.....	65.4	7.142 <sup>16°</sup>	419°
10	acetate.....	Zn(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> .....	183.45	1.84	242°
11	".....	Zn(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>2</sub> .3H <sub>2</sub> O....	237.50	1.72	235°-257°
12	amide.....	Zn(NH <sub>2</sub> ) <sub>2</sub> .....	97.51	.....	dec. r. ht.
13	arsenate.....	Zn <sub>3</sub> (AsO <sub>4</sub> ) <sub>2</sub> .8H <sub>2</sub> O....	618.33	3.309 <sup>15°</sup>	.....
14	bromate.....	Zn(BrO <sub>3</sub> ) <sub>2</sub> .6H <sub>2</sub> O....	429.42	2.566	100°
15	bromide.....	ZnBr <sub>2</sub> .....	225.32	4.219 <sup>4</sup>	394°
16	carbonate.....	ZnCO <sub>3</sub> .....	125.40	4.42-4.45	CO <sub>2</sub> , 300°
17	chlorate.....	Zn(ClO <sub>3</sub> ) <sub>2</sub> .6H <sub>2</sub> O....	340.40	.....	60°
18	chloride.....	ZnCl <sub>2</sub> .....	136.30	2.91 <sup>4</sup>	365°
19	cyanide.....	Zn(CN) <sub>2</sub> .....	117.48	.....	decomp.
20	ferrocyanide.....	Zn <sub>2</sub> Fe(CN) <sub>6</sub> .3H <sub>2</sub> O....	396.99	.....	.....
21	fluoride.....	ZnF <sub>2</sub> .....	103.4	4.612 <sup>12°</sup>	734°
22	".....	ZnF <sub>2</sub> .4H <sub>2</sub> O.....	175.46	2.535 <sup>12°</sup>	4H <sub>2</sub> O, 100°
23	hydroxide.....	Zn(OH) <sub>2</sub> .....	99.42	3.053	decomp.
24	iodate.....	Zn(IO <sub>3</sub> ) <sub>2</sub> .2H <sub>2</sub> O....	451.37	.....	.....
25	iodide.....	ZnI <sub>2</sub> .....	319.34	4.696	446°
26	nitrate.....	Zn(NO <sub>3</sub> ) <sub>2</sub> .6H <sub>2</sub> O....	297.58	2.065 <sup>13°</sup>	36.4°
27	nitride.....	Zn <sub>3</sub> N <sub>2</sub> .....	224.28	.....	.....
28	oxalate.....	ZnC <sub>2</sub> O <sub>4</sub> .2H <sub>2</sub> O....	189.07	2.582 <sup>17.5°</sup>	.....
29	oxide.....	ZnO.....	81.4	5.78	.....
30	" per.....	ZnO <sub>2</sub> .....	97.4	.....	.....
31	oxysulphide.....	ZnO.ZnS.....	178.86	.....	.....
32	permanganate.....	ZnMnO <sub>4</sub> .6H <sub>2</sub> O....	292.50	.....	5H <sub>2</sub> O, 100°
33	phosphate.....	Zn <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> .....	386.20	3.998 <sup>15°</sup>	red heat
34	".....	Zn <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> .4H <sub>2</sub> O....	458.26	2.76-2.85	.....
35	".....	Zn <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub> .8H <sub>2</sub> O....	530.32	3.109 <sup>15°</sup>	.....
36	" acid.....	ZnH <sub>2</sub> P <sub>2</sub> O <sub>8</sub> .2H <sub>2</sub> O....	295.46	.....	.....
37	" pyro.....	Zn <sub>2</sub> P <sub>2</sub> O <sub>7</sub> .....	304.80	.....	.....
38	phosphide.....	Zn <sub>3</sub> P <sub>2</sub> .....	258.2	4.76	.....
39	salicylate.....	Zn(C <sub>7</sub> H <sub>5</sub> O <sub>3</sub> ) <sub>2</sub> .3H <sub>2</sub> O....	393.53	.....	.....
40	sulphate.....	ZnSO <sub>4</sub> .....	161.46	3.6235 <sup>15°</sup>	dec. 400°
41	".....	ZnSO <sub>4</sub> .7H <sub>2</sub> O.....	287.57	1.964	50°

\* Sublimes in vacuo.

† Loses 3H<sub>2</sub>O at 100°.‡ Loses 6H<sub>2</sub>O at 200°.

Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1		insoluble	.....	insol. alk.; sol. a., $\text{NH}_4\text{Cl}$	gelatinous . . .
2		v. soluble	.....	sol. al.; s. sol. ether.	.....
3		soluble	.....	sol. conc. $\text{HNO}_3$	prisms . . . . .
4		v. soluble	.....	v. sol. al., ether.	crystalline. . . .
5		insoluble	.....	s. sol. $\text{HCl}$	.....
6		insoluble	.....	sol. a.; insol. alk.	crystalline . . . .
7		1.52	s. soluble	sol. sat. $\text{K}_2\text{SO}_4\text{aq.}$	.....
8		9.3	4.8 <sup>100°</sup>	s. sol. $\text{H}_2\text{SO}_4$ ; insol. al.	monoclinic. . . .
9	918°	insoluble	insoluble	sol. a., alk., $\text{H.C}_2\text{H}_3\text{O}_2$	crystalline. . . .
10	*	v. soluble	v. soluble	.....	mono. laminæ.
11	†	v. soluble	v. soluble	.....	.....
12		decomp.	.....	dec. by al.; insol. ether.	amorphous . . .
13		insoluble	.....	sol. $\text{HNO}_3$ , $\text{H}_3\text{AsO}_4$ , alk.	mono. needles.
14	‡	100	v. soluble	.....	regular . . . . .
15	650°	390°	670 <sup>100°</sup>	v. sol. al., ether, $\text{NH}_3\text{aq.}$	needles . . . . .
16		insoluble	insoluble	sol. a., alk., $\text{NH}_4$ salts.	rhombohedral.
17	decomp.	v. soluble	v. soluble	v. soluble alcohol . . . .	.....[prisms
18	730°	209°	616 <sup>100°</sup>	100 <sup>12.5</sup> al., v. sol. ether.	octahedral or
19		insoluble	.....	insol. al.; sol. alk., $\text{KCN}$	orthorh. prisms
20		insoluble	.....	insol. $\text{HCl}$ ; sol. $\text{NH}_3\text{aq.}$	.....
21		s. soluble	soluble	insol. al.; sol. hot acids	mono. needles.
22		s. soluble	soluble	sol. $\text{NH}_3\text{aq.}$ , a., alk.	.....
23		insoluble	insoluble	sol. acids, alkalies . . . .	rhombic prisms
24		0.877	1.32	sol. $\text{HNO}_3$ , $\text{NH}_3\text{aq.}$ , alk.	.....
25	624°	430°	510 <sup>100°</sup>	sol. a., $(\text{NH}_4)_2\text{CO}_3\text{aq.}$	octahedra. . . .
26	§ 131°	v. soluble	v. soluble	v. soluble alcohol	tetragonal. . . .
27		decomp.	.....	.....	gray . . . . .
28		0.0008 <sup>18°</sup>	.....	sol. acids, alk.	.....
29		0.001	.....	sol. acids alk., $\text{NH}_4\text{Cl}$	yel. hexag. or
30		insoluble	.....	decomp. by acids . . . .	[amorphous
31		.....	.....	soluble $\text{HCl}$	yellow . . . . .
32		v. soluble	v. soluble	decomp. al., acids . . . .	dark blue crys.
33		insoluble	.....	.....[salts	.....
34		insoluble	.....	v. sol. a., $\text{NH}_3\text{aq.}$ , $\text{NH}_4$	prisms . . . . .
35		insoluble	.....	soluble alkalies . . . . .	rhombic plates
36		decomp.	.....	.....	triclinic . . . . .
37		insoluble	.....	sol. a., alk., $\text{NH}_3\text{aq.}$	.....
38		insoluble	.....	sol. dil. acids . . . . .	.....
39		52°	.....	soluble alcohol . . . . .	needles . . . . .
40		43.02°	95.03 <sup>100°</sup>	s. soluble alcohol . . . .	.....
41		115.2°	633.59 <sup>100°</sup>	s. soluble alcohol . . . .	rhomb. prisms or monoclinic

§ Loses  $6\text{H}_2\text{O}$  at  $105^\circ$ . ¶ Anhydrous. || Loses  $7\text{H}_2\text{O}$  at  $280^\circ$ ; dec. at  $400^\circ$ .

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A). H <sub>2</sub> = 1 (D).	Melting Point, °C.
1	Zinc sulphate.....	ZnSO <sub>4</sub> .6H <sub>2</sub> O.....	269.56	2.07	.....
2	sulphide.....	ZnS.....	97.46	3.98	1049°
3	"    (blende) ..	ZnS.....	97.46	4.03-4.07	1049°
4	sulphite.....	2ZnSO <sub>3</sub> .5H <sub>2</sub> O.....	381.00	.....	.....
5	Zirconium.....	Zr.....	90.6	4.15	1500°
6	".....	Zr.....	90.6	5.3	ox. slowly
7	bromide.....	ZrBr <sub>4</sub> .....	410.44	.....	.....
8	carbide.....	ZrC <sub>2</sub> .....	114.60	.....	.....
9	chloride.....	ZrCl <sub>4</sub> .....	232.40	.....	.....
10	fluoride.....	ZrF <sub>4</sub> .....	166.60	.....	.....
11	hydroxide.....	Zr(OH) <sub>4</sub> .....	158.63	3.25	2H <sub>2</sub> O, 550°
12	iodide.....	ZrI <sub>4</sub> .....	598.48	.....	.....
13	nitrate.....	Zr(NO <sub>3</sub> ) <sub>4</sub> .5H <sub>2</sub> O.....	428.24	.....	dec. 100°
14	oxalate.....	Zr(C <sub>2</sub> O <sub>4</sub> ) <sub>2</sub> .2Zr(OH) <sub>4</sub> .....	583.86	.....	decomp.
15	oxide di-.....	ZrO <sub>2</sub> .....	122.60	5	infusible
16	"    ".....	ZrO <sub>2</sub> .....	122.60	5.1-5.7	infusible
17	"    per-.....	ZrO <sub>3</sub> .....	138.60	.....	.....
18	oxybromide.....	ZrOBr <sub>2</sub> .3H <sub>2</sub> O.....	320.57	.....	.....
19	oxychloride.....	ZrOCl <sub>2</sub> .8H <sub>2</sub> O.....	321.63	.....	.....
20	oxyiodide.....	ZrI(OH) <sub>3</sub> .3H <sub>2</sub> O.....	322.64	.....	.....
21	oxyiodide.....	ZrI <sub>2</sub> O.8H <sub>2</sub> O.....	504.67	.....	decomp.
22	sulphate.....	Zr(SO <sub>4</sub> ) <sub>2</sub> .4H <sub>2</sub> O.....	354.78	.....	.....



Number.	Boiling Point, °C.	Solubility in 100 Parts.			Crystalline Form and Color.
		Cold Water.	Hot Water.	Alcohol (al.), Acids (a.), Alkalies (alk.), etc.	
1	.....	.....	.....	.....	mono. or tetra.
2	.....	insoluble	insoluble	v. sol. a.; insol. $\text{H.C}_2\text{H}_3\text{O}_2$ *	.....
3	.....	insoluble	insoluble	soluble acids. . . $[\text{NH}_3\text{aq.}]$	gray crystals. .
4	.....	0.16	decomp.	insol. al.; sol. $\text{H}_2\text{SO}_4$	.....
5	.....	insoluble	insoluble	s. soluble acids, sol. HF.	black amorph.
6	.....	insoluble	insoluble	soluble hot acids, HF.	gray crystals. .
7	.....	decomposes	.....	.....	crys. powder. .
8	.....	.....	.....	soluble dilute HF.	.....
9	400°	soluble	decomposes	soluble alcohol. . . . .	.....
10	white heat	insoluble	.....	soluble HF. . . . .	hexagonal. . .
11	.....	0.02	insoluble	sol. a.; insol. alk., al. . .	gelatinous. . .
12	.....	soluble	soluble	sol. a., ether; s. sol. $\text{CS}_2$ .	red br. crystals
13	.....	soluble	decomp.	..... $[\text{insol. NH}_3\text{aq.}]$	.....
14	.....	insoluble	.....	sol. $(\text{NH}_4)_2\text{C}_2\text{O}_4$ , HCl;	.....
15	.....	insoluble	.....	sol. conc. $\text{H}_2\text{SO}_4$ , HF. .	amorphous. . .
16	.....	insoluble	.....	.....	quad. prisms or
17	.....	.....	.....	insol. cold dil. $\text{H}_2\text{SO}_4$ . .	..... $[\text{hexag.}]$
18	.....	soluble	.....	.....	needles. . . . .
19	.....	soluble	decomp.	soluble alcohol. . . . .	needles. . . . .
20	.....	v. soluble	.....	.....	amorphous. . .
21	.....	v. soluble	v. soluble	v. sol. ether. . . . .	needles. . . . .
22	.....	soluble	146 <sup>39.5°</sup>	sol. $\text{H}_2\text{SO}_4$ ; insol. al. . .	crystalline. . .

\* Yellow regular tetrahedral or hexagonal rhombohedral.

## XXVI. — PHYSICAL CONSTANTS

MOLECULAR WEIGHT, SPECIFIC GRAVITY, SOLUBILITY, MELTING

By

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Abietic acid . . . . .	$C_{19}H_{28}O_2$ . . . . .	288.23	.....
2	Acenaphthen. . . . .	$C_{10}H_6(CH_2)_2$ . . . . .	154.08	1.03
3	Acetal. . . . .	$CH_3CH(OC_2H_5)_2$ . . . . .	118.12	0.8314 <sup>¶</sup>
4	" (K.). . . . .	$CH_3CH(OC_2H_5)_2$ . . . . .	118.12	0.824 <sup>¶¶</sup>
5	Acet-aldehyde . . . . .	$CH_3CHO$ . . . . .	44.03	0.7876 <sup>¶</sup>
6	" (K.). . . . .	$CH_3CHO$ . . . . .	44.03	0.79—0.795
7	aldoxine. . . . .	$CH_3CHNO$ . . . . .	58.07	0.9645 <sup>¶</sup>
8	amide. . . . .	$CH_3CONH_2$ . . . . .	59.08	1.559
9	anilid. . . . .	$CH_3CONH.C_6H_5$ . . . . .	135.11	1.2105 <sup>¶</sup>
10	Acetic acid. . . . .	$CH_3CO_2H$ . . . . .	60.03	1.0515 <sup>¶</sup>
11	" " (K.). . . . .	$CH_3CO_2H$ . . . . .	60.03	1.048—1.049
12	" anhydride. . . . .	$(CH_3CO)_2O$ . . . . .	102.05	1.0799 <sup>¶</sup>
13	" " (K.). . . . .	$(CH_3CO)_2O$ . . . . .	102.05	1.0775 <sup>¶¶</sup>
14	Aceto-acetic acid . . . . .	$CH_3CO.CH_2CO_2H$ . . . . .	102.05	.....

This table has been compiled by Prof. E. Emmet Reid, of Baylor University, Texas, most of the data having been obtained from the third edition of Beilstein.

The constants given in the lines in which the letter K. follows the name of the compound were determined for the Chemical Annual by C.A.F. Kahlbaum.

The boiling points were determined by him under the following conditions:

1. The distilling flask was of such a size that it was about half filled with the substance being investigated. Whenever possible a metallic vessel was used, on account of the well-known tendency to superheating in glass vessels, especially with low-boiling liquids, such as aldehyde, pentane, acetone, methyl alcohol, etc. Ether, for example, boils in glass vessels as high as 50°. Whenever glass vessels were used a piece of asbestos paper having a circular hole of  $\frac{1}{8}$ — $\frac{1}{4}$  the diameter of the distilling flask, according to the boiling point of the substance investigated, was placed under the flask.

2. Heat was supplied by a pointed non-luminous flame without wire gauze. The size of the flame was regulated at the beginning of the experiment so that two drops of the distillate were produced per second. This rate of distillation was maintained during the entire experiment. The distillation was discontinued when 90 to 93% of the liquid had been distilled off. The temperature was observed as soon as the first drops of the distillate fell from the condenser.

# OF ORGANIC COMPOUNDS

AND BOILING POINTS, CRYSTALLINE FORM AND COLOR.

E. EMMET REID, PH.D.

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	insoluble	v. soluble	v. soluble	153-4°	.....	leaf. or monoc.
2	.....	v. soluble	.....	95°	277.5°	needles/alc.
3	5.2 <sup>25</sup>	∞	∞	.....	102.91°	.....
4	5.5	∞	∞	.....	102-4°	.....
5	∞	∞	∞	-120.7°	20.8°	.....
6	∞	∞	∞	abt. -120°	20.5-24°	.....
7	∞	∞	∞	47° or 13°	114-5°	.....
8	v. soluble	v. soluble	v. soluble	82°	222° C.	hexagonal...
9	0.53 <sup>6</sup>	soluble	soluble	112°	303.8°	leaflets/w...
10	∞	∞	∞	16.7°	118.1° C.	.....
11	∞	∞	∞	.....	117-8°	colorless....
12	decomp.	.....	.....	.....	137.9 C.	.....
13	sol. dec.	∞	∞	.....	137-40°	colorless....
14	∞	.....	∞	.....	decomp.	.....

3. All boiling points refer to an atmospheric pressure of 760 mm. When the atmospheric pressure was abnormal, thermometers with movable scales were employed, water (B. P. 100°), aniline (B. P. 184°) and quinoline (B. P. 238°) being used as standard substances.

4. The boiling points given are the limits between which the greater part of the liquid distilled.

## ABBREVIATIONS

The following abbreviations have been used in the table: abs. = absolute; acet. = acetone; al. = alcohol; amor. = amorphous; anhy. = anhydrous; at. = atmosphere; bz. = benzene; chlo. = chloroform; cryst. = crystalline; dec. = decomposes; et. = ether; exp. = explodes; hexag. = hexagonal; insol. = insoluble; leaf. = leaflets; lig. = ligroene; acet. = acetone; mod. = moderately; monoc. = monoclinic; need. = needles; pris. = prisms; quad. = quadratic; s. = slightly; sol. = soluble; subl. = sublimes; tab. = tablets; triclinic w. indicates that crystals separating from a water solution are triclinic in form; v. = very; w. = water; yel. = yellow; 265°<sup>100</sup> indicates that the substance boils at 265° under a pressure of 100 mm.; a small figure to the right of a number denoting solubility signifies the temperature; ∞ = infinitely soluble or soluble in all proportions; > = greater than; < = less than.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Aceto-acetic ether . . . . .	$\text{CH}_3\text{CO.CH}_2\text{CO}_2\text{C}_2\text{H}_5$ . . .	130.08	1.0282 <sup>Y</sup>
2	“ “ (K.) . . . . .	$\text{CH}_3\text{CO.CH}_2\text{CO}_2\text{C}_2\text{H}_5$ . . .	130.08	1.024 <sup>##</sup>
3	Acetol . . . . .	$\text{CH}_3\text{CO.CH}_2\text{OH}$ . . . . .	74.05	.....
4	Acetone . . . . .	$\text{CH}_3\text{COCH}_3$ . . . . .	58.05	0.7970 <sup>Y</sup>
5	“ (K.) . . . . .	$\text{CH}_3\text{COCH}_3$ . . . . .	58.05	0.788–0.790
6	Aceto-phenone . . . . .	$\text{CH}_3\text{CO.C}_6\text{H}_5$ . . . . .	120.06	1.032 <sup>15</sup>
7	“ (K.) . . . . .	$\text{CH}_3\text{CO.C}_6\text{H}_5$ . . . . .	120.06	1.028 <sup>##</sup>
8	Acetoxine . . . . .	$(\text{CH}_3)_2\text{C:NOH}$ . . . . .	73.10	0.8868 <sup>Y</sup>
9	Acet-o-toluid . . . . .	$\text{CH}_3\text{CONHC}_6\text{H}_4\text{CH}_3$ . . . . .	149.13	.....
10	Acetyl-acetone . . . . .	$\text{CH}_3\text{COCH}_2\text{COCH}_3$ . . . . .	100.06	0.987 <sup>15</sup>
11	bromide . . . . .	$\text{CH}_3\text{COBr}$ . . . . .	122.99	.....
12	chloride . . . . .	$\text{CH}_3\text{COCl}$ . . . . .	78.48	1.1051 <sup>Y</sup>
13	Acetylene . . . . .	$\text{CH}_2\text{CH}_2$ . . . . .	26.02	.91(A). 460–7
14	dicarbonic acid . . . . .	$\text{CO}_2\text{H.C:C.CO}_2\text{H} + 2\text{H}_2\text{O}$ . . . . .	150.05	.....
15	Acetyl fluoride . . . . .	$\text{CH}_3\text{COF}$ . . . . .	62.03	1.0369 <sup>##</sup>
16	iodide . . . . .	$\text{CH}_3\text{COI}$ . . . . .	170.00	1.98 <sup>17</sup>
17	peroxide . . . . .	$(\text{CH}_3\text{CO})_2\text{O}_2$ . . . . .	118.05	.....
18	propyl alcohol . . . . .	$\text{CH}_3\text{CO}(\text{CH}_2)_2\text{CH}_2\text{OH}$ . . . . .	102.08	1.0159 <sup>o</sup>
19	rosaniline . . . . .	$\text{C}_{20}\text{H}_{18}(\text{C}_2\text{H}_5\text{O})\text{N}_3$ . . . . .	343.29	.....
20	urea . . . . .	$\text{NH}_2\text{CO.NHC}_2\text{H}_5\text{O}$ . . . . .	102.13	.....
21	Aconic acid . . . . .	$\text{C}_8\text{H}_4\text{O}_4$ . . . . .	128.03	.....
22	Aconitic acid . . . . .	$\text{C}_8\text{H}_6\text{O}_6$ . . . . .	174.05	.....
23	Acridine . . . . .	$\text{C}_6\text{H}_4 < \begin{smallmatrix} \text{CH} \\ \text{N} \end{smallmatrix} > \text{C}_6\text{H}_4$ . . . . .	179.11	.....
24	Acrolein . . . . .	$\text{CH}_2:\text{CH.CHO}$ . . . . .	56.03	0.84
25	Acrylic acid . . . . .	$\text{CH}_2:\text{CH.CO}_2\text{H}$ . . . . .	72.03	1.0621 <sup>Y</sup>
26	Adipic acid . . . . .	$\text{CO}_2\text{H}(\text{CH}_2)_4\text{CO}_2\text{H}$ . . . . .	146.08	.....
27	Aldehyde ammonia . . . . .	$\text{CH}_3\text{CH}(\text{OH}).\text{NH}_2$ . . . . .	61.10	.....
28	benzoic acid (o.) . . . . .	$\text{CO}_2\text{H.C}_6\text{H}_4\text{CHO}$ . . . . .	150.05	1.404
29	“ “ (m.) . . . . .	$\text{CO}_2\text{H.C}_6\text{H}_4\text{CHO}$ . . . . .	150.05	.....
30	“ “ (p.) . . . . .	$\text{CO}_2\text{H.C}_6\text{H}_4\text{CHO}$ . . . . .	150.05	.....
31	Aldehydine . . . . .	$2,5\text{CH}_3\text{C}_6\text{H}_3\text{N.C}_2\text{H}_5$ . . . . .	121.13	0.9184 <sup>23</sup>
32	Aldol . . . . .	$\text{CH}_3\text{CH}(\text{OH})\text{CH}_2\text{COH}$ . . . . .	88.06	1.1094 <sup>16</sup>
33	Alizarine . . . . .	$\text{C}_6\text{H}_4(\text{CO})_2\text{C}_6\text{H}_2(\text{OH})_2$ . . . . .	240.06	.....
34	β-carbonic acid . . . . .	$\text{CO}_2\text{H.C}_6\text{H}_3(\text{CO})_2\text{C}_6\text{H}_2$ . . . . .	284.06	.....
35	Allantoin . . . . .	$\text{C}_4\text{H}_6\text{N}_4\text{O}_3$ . . . . . $[(\text{OH})_2]$	158.21	.....
36	Alloxan . . . . .	$\text{C}_4\text{H}_2\text{N}_4\text{O}_4 + 1 \text{ or } 4\text{H}_2\text{O}$ . . . . .	142.10	.....
37	Allyl acetate . . . . .	$\text{CH}_2\text{CO}_2\text{C}_2\text{H}_5$ . . . . .	100.06	0.9376 <sup>o</sup>
38	acetic acid . . . . .	$\text{CH}_3:\text{CH}(\text{CH}_3)_2\text{CO}_2\text{H}$ . . . . .	100.06	0.9842 <sup>15</sup>

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	sl. soluble			< -80°	181°	
2	s. soluble	∞	∞		177-81°	becomes yel.
3	∞	∞	∞		147° dec.	
4	∞	∞	∞	-94.9°	56.53° C.	
5	∞	∞	∞	-95°	56-7°	
6	insoluble			20.5°	202° C.	leaflets
7	v. s. sol.	soluble	∞	17-19°	199-202°	usually yel. . .
8	v. soluble	v. soluble	v. soluble	60°	135°	prisms. . . . .
9	0.86 <sup>19</sup>			110°	296°	monoclinic. . .
10	12.5	∞	∞		137°	
11	decomp.	decomp.	soluble		81°	
12	decomp.	decomp.	soluble		50.9 C.	
13	100 c.c. <sup>18</sup>	600 c.c. <sup>18</sup>			-85°	
14	v. soluble	v. soluble	v. soluble	178-9°		crystalline. . .
15	∞ chlo.	∞	∞		20.8° <sup>770</sup>	
16	decomp.	decomp.	soluble		108°	brown. . . . .
17	sl. soluble			30°	explodes	plates. . . . .
18	∞	v. soluble	v. soluble		208-9°	
19	insoluble	soluble	insol.; sol. CHCl <sub>3</sub> , CS <sub>2</sub>			red
20	v. sol. hot	1 <sup>20</sup> 10 <sup>77</sup>		212°		
21	17.6 <sup>18</sup>			164°	dec.	triclinic/w. . .
22	18	50 <sup>12</sup>	v. soluble	191° dec.		leaflets. . . . .
23	s. soluble	v. soluble	v. soluble	107°	>360° sub.	leaf. or need. .
24	40	soluble	soluble		52.4°	
25	∞			8°	140°	
26	1.44 <sup>18</sup>	v. soluble	0.605 <sup>18</sup>	153° C.	265° <sup>100</sup>	triclinic. . . . .
27	v. soluble	v. soluble	s. soluble	70-80°	100°	rhomboh. . . . .
28	v. soluble	v. soluble	v. soluble	97.2°	dec.	moncl. leaf./w
29				164-6°		sm. needles. .
30	sol. hot.		s. soluble	285°	sub.	needles/w. . . .
31	insol.	v. soluble	v. soluble		173-4°	
32	∞	∞	soluble		90-105° <sup>20</sup>	thick syrup. .
33	0.034 <sup>100</sup>	v. soluble *	v. soluble	289-90°	430°	red triclinic. .
34	s. soluble	mod. sol.	s. soluble	305°	sub.	{ red need. or powd.
35	0.6 <sup>20</sup> v.s. h.	v. v. s. sol.	insol. .		dec.	monocl. pris. .
36	v. soluble	soluble		dec.	170°(?)	triclinic/w. . .
37	s. soluble	∞	∞		103-4° <sup>784</sup>	
38	s. soluble	v. soluble	v. soluble	< -18°	188° C.	

\* Soluble CS<sub>2</sub>, KOH.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Allyl acetone . . . . .	$\text{CH}_3\text{CO.CH}_2\text{C}_3\text{H}_5$ . . . . .	98.08	0.834 <sup>27</sup>
2	alcohol . . . . .	$\text{CH}_2\text{:CH.CH}_2\text{OH}$ . . . . .	58.05	0.871 <sup>o</sup>
3	" (K.) . . . . .	$\text{CH}_2\text{:CH.CH}_2\text{OH}$ . . . . .	58.05	0.854-0.857†
4	amine . . . . .	$\text{CH}_2\text{:CH.CH}_2\text{NH}_2$ . . . . .	57.10	0.7688 <sup>15</sup>
5	aniline . . . . .	$\text{C}_6\text{H}_5\text{NH.C}_6\text{H}_5$ . . . . .	133.13	0.982 <sup>25</sup>
6	benzene . . . . .	$\text{C}_6\text{H}_5\text{CH:CH.CH}_3$ . . . . .	118.08	0.918†
7	benzoate . . . . .	$\text{C}_6\text{H}_5\text{CO}_2\text{C}_6\text{H}_5$ . . . . .	162.08	1.059 <sup>15</sup>
8	bromide . . . . .	$\text{CH}_2\text{:CH.CH}_2\text{Br}$ . . . . .	121.00	1.436 <sup>15</sup>
9	butyrate . . . . .	$\text{CH}_3(\text{CH}_2)_2\text{CO}_2\text{C}_6\text{H}_5$ . . . . .	128.10	0.9371 <sup>15</sup>
10	chloride . . . . .	$\text{CH}_2\text{:CH.CH}_2\text{Cl}$ . . . . .	76.49	0.8351 <sup>15</sup>
11	cyanide . . . . .	$\text{CH}_2\text{CH:CHCN}$ . . . . .	67.08	0.8046 <sup>15</sup>
12	ether . . . . .	$(\text{CH}_2\text{:CH.CH}_2)_2\text{O}$ . . . . .	98.08	0.9322 <sup>17, 5</sup>
13	formate . . . . .	$\text{HCO}_2\text{C}_6\text{H}_5$ . . . . .	86.05	1.8293 <sup>23</sup>
14	iodide . . . . .	$\text{CH}_2\text{:CH.CH}_2\text{I}$ . . . . .	168.01	1.0173 <sup>10</sup>
15	isoamyl ether . . . . .	$\text{C}_6\text{H}_5\text{O.C}_5\text{H}_{11}$ . . . . .	128.13	1.055 <sup>15</sup>
16	isobutyrate . . . . .	$\text{C}_3\text{H}_7\text{O}_2\text{C}_6\text{H}_5$ . . . . .	128.10	0.794 <sup>17</sup>
17	isocyanide . . . . .	$\text{C}_3\text{H}_5\text{NC}$ . . . . .	67.08	142.12
18	isovalerate . . . . .	$\text{C}_6\text{H}_5\text{O}_2\text{C}_3\text{H}_7$ . . . . .	142.12	74.11
19	mercaptan . . . . .	$\text{CH}_2\text{:CH.CH}_2\text{SH}$ . . . . .	74.11	99.14
20	mustard oil . . . . .	$\text{CH}_2\text{:CH.CH}_2\text{NCS}$ . . . . .	99.14	1.0173 <sup>10</sup>
21	oxalate . . . . .	$\text{C}_2\text{O}_4(\text{C}_6\text{H}_5)_2$ . . . . .	170.08	1.055 <sup>15</sup>
22	phenyl ether . . . . .	$\text{C}_6\text{H}_5\text{OC}_6\text{H}_5$ . . . . .	134.08	176.18
23	phenyl urea . . . . .	$\text{C}_6\text{H}_5\text{HN.CO.NHC}_6\text{H}_5$ . . . . .	176.18	119.11
24	pyridine . . . . .	$\text{C}_5\text{H}_5\text{C}_6\text{H}_5\text{N}$ . . . . .	119.11	0.9595 <sup>o</sup>
25	sulphide . . . . .	$(\text{CH}_2\text{:CH.CH}_2)_2\text{S}$ . . . . .	114.14	0.8877 <sup>17</sup>
26	sulphocyanide . . . . .	$\text{C}_6\text{H}_5\text{SCN}$ . . . . .	99.14	1.056 <sup>15</sup>
27	Allylene . . . . .	$\text{CH}_2\text{C:CH}$ . . . . .	40.03	
28	oxide . . . . .	$\text{CH}_2(\text{C:CH})\text{O}$ . . . . .	56.03	
29	Aluminum ethyl . . . . .	$\text{Al}(\text{C}_2\text{H}_5)_3$ . . . . .	114.22	
30	methyl . . . . .	$\text{Al}(\text{CH}_3)_3$ . . . . .	72.17	
31	Amarin . . . . .	$\text{C}_{21}\text{H}_{18}\text{N}_2$ . . . . .	298.23	
32	Amaron . . . . .	$\text{C}_{20}\text{H}_{16}\text{N}_2$ . . . . .	384.24	
33	Ammelid . . . . .	$\text{C}_6\text{H}_5\text{N}_2\text{O}_3$ . . . . .	255.43	
34	Ammelin . . . . .	$\text{C}_3\text{H}_5\text{N}_2\text{O}$ . . . . .	127.24	
35	Amino-acetone . . . . .	$\text{NH}_2\text{CH}_2\text{CO.CH}_3$ . . . . .	73.10	
36	anthraquinone . . . . .	$\text{C}_{14}\text{H}_8\text{O}_2\text{NH}_2$ . . . . .	223.07	
37	azo-benzene (p.) . . . . .	$\text{NH}_2\text{C}_6\text{H}_4\text{N}_2\text{C}_6\text{H}_5$ . . . . .	197.21	
38	azo-napthaline . . . . .	$\text{C}_{10}\text{H}_7\text{N}_2\text{C}_{10}\text{H}_6\text{NH}_2$ . . . . .	297.24	
39	benzaldehyde (o.) . . . . .	$\text{C}_6\text{H}_4\text{CHO.NH}_2$ . . . . .	121.10	
40	benzamide (o.) . . . . .	$\text{NH}_2\text{C}_6\text{H}_4\text{CONH}_2$ . . . . .	136.14	
41	benzamide (m.) . . . . .	$\text{NH}_2\text{C}_6\text{H}_4\text{CONH}_2$ . . . . .	136.14	

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	insol.				128-30°	
2	∞	∞	∞		96.6°C.	
3	∞	∞	∞		95-7°	
4	∞	soluble			56.5 <sup>0758</sup>	
5	v. s. sol.	soluble			208-9°	yellow oil.
6		soluble			174-5°	
7					230 <sup>0758</sup>	
8	insol.				70-1°	
9					142°	
10	insol.	soluble			46°	
11		soluble			119°C.	
12	s. soluble	∞	∞		94.3°	
13		soluble			83.6°C. <sup>758</sup>	
14	insol.				102.5-2.8c	
15					120°	
16					133.5°	
17	s. soluble	soluble			96-106°	
18					154-5°	
19					90°	
20	v. s. soluble	v. soluble	v. soluble		150.7°	
21	insol.	soluble			217°	
22	insol.				192-5°	
23				96-7°		needles
24					189-90°	
25	s. soluble	∞	∞		138.6 <sup>0758</sup>	
26	insol.				161°	
27			3000 c.c.		*	
28	s. soluble				62-3°	
29	dec.				194°	
30				0°	130°	
31	insol.	v. soluble	v. soluble	100°		prisms
32	insol.	s. sol. hot	s. soluble	245-6°	subl.	sm. need./ace
33	insol.	insol.	sol. acid			powder
34	0.02	insol.	sol. KOH	dec.		needles
35	v. soluble	soluble		188-9° dec.		need.or tab/al
36	v. sol. chlo.†	s. soluble	v. sol. acet.	256°	subl.	red powder.
37	v. s. sol. hot	v. sol. hot	v. soluble	127.4°	>360°	monoclinic.
38		mod. sol.	mod. sol.	173-5°	dist.	red needles
39	s. soluble	v. v. sol.	v. v. sol.	39-40°	dec.	leaflets
40	mod. sol.	v. sol.	s. soluble	108°		leaflets/chlo..
41	s. soluble	soluble	soluble	79°	abt. 300°	yel. moncl.

\* Liquefies at 3 to 4 atmosphere pressure.

† Very soluble benzene.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
<b>Amino-</b>				
1	benzamide (p.) . . . . .	$\text{NH}_2\text{C}_6\text{H}_4\text{CONH}_2$ . . . . .	136.14	
2	benzene-sulphonic acid (o.) . . . . .	$\text{NH}_2\text{C}_6\text{H}_4\text{SO}_3\text{H} + \frac{1}{2}\text{H}_2\text{O}$ . . . . .	182.17	
3	benzene-sulphonic acid (m.) . . . . .	$\text{NH}_2\text{C}_6\text{H}_4\text{SO}_3\text{H} + 1\frac{1}{2}\text{H}_2\text{O}$ . . . . .	200.19	
4	benzoic acid (o.) . . . . .	$\text{NH}_2\text{C}_6\text{H}_4\text{CO}_2\text{H}$ . . . . .	137.10	
5	“ “ (m.) . . . . .	$\text{NH}_2\text{C}_6\text{H}_4\text{CO}_2\text{H}$ . . . . .	137.10	1.5104 <sup>4</sup>
6	“ “ (p.) . . . . .	$\text{NH}_2\text{C}_6\text{H}_4\text{CO}_2\text{H}$ . . . . .	137.10	
7	cinnamic acid (o.) . . . . .	$\text{NH}_2\text{C}_6\text{H}_4\text{C}_2\text{H}_2\text{CO}_2\text{H}$ . . . . .	163.11	
8	“ “ (m.) . . . . .	$\text{NH}_2\text{C}_6\text{H}_4\text{C}_2\text{H}_2\text{CO}_2\text{H}$ . . . . .	163.11	
9	“ “ (p.) . . . . .	$\text{NH}_2\text{C}_6\text{H}_4\text{C}_2\text{H}_2\text{CO}_2\text{H}$ . . . . .	163.11	
10	diphenyl (o.) . . . . .	$\text{C}_6\text{H}_5\text{C}_6\text{H}_4\text{NH}_2$ . . . . .	169.13	
11	“ (p.) . . . . .	$\text{C}_6\text{H}_5\text{C}_6\text{H}_4\text{NH}_2$ . . . . .	169.13	
12	ethyl-benzene (o.) . . . . .	$\text{C}_2\text{H}_5\text{C}_6\text{H}_4\text{NH}_2$ . . . . .	121.13	0.983 <sup>22</sup>
13	“ (m.) . . . . .	$\text{C}_2\text{H}_5\text{C}_6\text{H}_4\text{NH}_2$ . . . . .	121.13	0.9896 <sup>9</sup>
14	“ (p.) . . . . .	$\text{C}_2\text{H}_5\text{C}_6\text{H}_4\text{NH}_2$ . . . . .	121.13	0.975 <sup>22</sup>
15	$\beta$ -naphthol (1) . . . . .	$\text{NH}_2\text{C}_{10}\text{H}_7\text{OH}$ . . . . .	159.11	
16	phenol (o.) . . . . .	$\text{NH}_2\text{C}_6\text{H}_4\text{OH}$ . . . . .	109.10	
17	“ (m.) . . . . .	$\text{NH}_2\text{C}_6\text{H}_4\text{OH}$ . . . . .	109.10	
18	“ (p.) . . . . .	$\text{NH}_2\text{C}_6\text{H}_4\text{OH}$ . . . . .	109.10	
19	quinoline (2) . . . . .	$\text{C}_8\text{H}_6\text{N.NH}_2$ . . . . .	144.14	
20	“ (4) . . . . .	$\text{C}_8\text{H}_6\text{N.NH}_2 + \text{H}_2\text{O}$ . . . . .	162.16	
21	salicylic acid (5) . . . . .	$\text{NH}_2\text{C}_6\text{H}_3(\text{OH})\text{CO}_2\text{H}$ . . . . .	153.10	
22	thiophene . . . . .	$\text{NH}_2\text{C}_4\text{H}_3\text{S}$ . . . . .	99.14	
23	triphenyl-methane . . . . .	$(\text{C}_6\text{H}_5)_3\text{CH.C}_6\text{H}_4\text{NH}_2$ . . . . .	259.18	
24	Amygdaline . . . . .	$\text{C}_{20}\text{H}_{27}\text{NO}_{11} + 3\text{H}_2\text{O}$ . . . . .	511.31	
25	Amygdalinic acid . . . . .	$\text{C}_{20}\text{H}_{28}\text{O}_{13}$ . . . . .	476.22	
26	Amyl acetate . . . . .	$\text{CH}_3\text{CO}_2\text{C}_5\text{H}_{11}$ . . . . .	130.12	0.8792 <sup>20</sup>
27	alcohol (n.) . . . . .	$\text{CH}_3(\text{CH}_2)_3\text{CH}_2\text{OH}$ . . . . .	88.10	0.8168 <sup>20</sup>
28	“ (act.) . . . . .	$\text{CH}_3(\text{C}_2\text{H}_5)\text{CH.C}_2\text{H}_4\text{OH}$ . . . . .	88.10	0.8330 <sup>†</sup>
29	“ (sec.) . . . . .	$\text{C}_4\text{H}_7\text{CH}(\text{OH}).\text{CH}_3$ . . . . .	88.10	0.8239 <sup>9</sup>
30	“ (tert.) . . . . .	$(\text{CH}_3)_2\text{C}(\text{OH}).\text{C}_2\text{H}_5$ . . . . .	88.10	0.8144 <sup>16</sup>
31	amine . . . . .	$\text{CH}_3(\text{CH}_2)_4\text{NH}_2$ . . . . .	87.15	0.7503 <sup>18</sup>
32	benzene . . . . .	$\text{C}_6\text{H}_5\text{C}_5\text{H}_{11}$ . . . . .	148.13	0.8602 <sup>22</sup>
33	bromide . . . . .	$\text{CH}_3(\text{CH}_2)_3\text{CH}_2\text{Br}$ . . . . .	151.05	1.2234 <sup>20</sup>
34	chloride . . . . .	$\text{CH}_3(\text{CH}_2)_3\text{CH}_2\text{Cl}$ . . . . .	106.54	0.8834 <sup>20</sup>
35	cyanide . . . . .	$(\text{C}_2\text{H}_5)_3\text{CHCN}$ . . . . .	97.13	0.866 <sup>20</sup>
36	ether (K.) . . . . .	$(\text{C}_5\text{H}_{11})_2\text{O}$ . . . . .	158.18	0.7745 <sup>††</sup>
37	formate . . . . .	$\text{CHO}_2\text{C}_5\text{H}_{11}$ . . . . .	116.10	0.9018 <sup>9</sup>



Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	s. soluble	.....	.....	182.9°	.....	bright yellow
2	1.66 <sup>21</sup>	soluble	.....	.....	.....	quad. prisms.
3	1.5 <sup>16</sup>	soluble	.....	.....	.....	triclinic pris..
4	sol. hot	v. soluble	.....	144-5°	subl.	trimet. leaflets
5	s. soluble	v. soluble	v. soluble	174°	.....	cryst. warts
6	mod. sol.	soluble	soluble	186-7°	.....	red yel. cryst.
7	v. s. sol.	mod. sol.	mod. sol.	158-9° dec	.....	yellow need. .
8	s. soluble	soluble	soluble	180-1°	.....	lg. yel. need..
9	s. soluble	v. soluble	v. soluble	175-6° dec	.....	fine yel. need.
10	insol.	soluble	.....	49°	.....	leaflets. ....
11	s. soluble	v. soluble	v. soluble	53°	322°	glit. leaf/al. .
12	.....	.....	.....	< -10°	215-6° C.	.....
13	.....	.....	.....	.....	214-5°	.....
14	.....	.....	.....	-5°	216-6.5° C	glit. leaflets..
15	v. s. sol. hot	.....	sol. fluoresc	.....	.....	.....
16	1.7°	4.5°	v. soluble	170°	subl.	rhombic.
17	sol. hot	soluble	soluble	122-3°	.....	pris. toluene
18	1.10	4.5°	.....	184° dec.	sup. pt.	leaflets
19	v. v. s. sol.	v. soluble	v. soluble	129° C.	.....	lrg. leaf./w...
20	soluble	soluble	sol. acet. {	69-70°	.....	fine need./w.
21	insol.	insol.	.....	(anh. 154°)	.....	.....
22	v. soluble	v. soluble	insol.	dec.	dec.	glit. needles..
23	sol. lig.	sol. bz.	soluble	.....	.....	oil. ....
24	8 <sup>10</sup> , ∞ <sup>100</sup>	0.11 <sup>10</sup> , 9.78	insol.	83-4°	.....	pris. lg. or et.
25	deliq.	insol.	insol.	200°	.....	tetra. pris./w.
26	s. soluble	∞	∞	.....	148°	cryst. mass..
27	soluble	∞	∞	.....	137.8°	.....
28	.....	.....	.....	.....	128.7°	.....
29	16.	.....	.....	.....	118.5 <sup>0753</sup>	leaflets. ....
30	s. soluble	soluble	.....	-12°	101.8°	.....
31	.....	soluble	.....	.....	103°	.....
32	.....	soluble	.....	.....	201 <sup>0743</sup>	.....
33	.....	soluble	.....	.....	128.7 <sup>0739</sup>	.....
34	.....	soluble	.....	.....	106.6 <sup>0740</sup>	.....
35	s. soluble	∞	∞	.....	144-6°	.....
36	insoluble	∞	∞	.....	169-72°	yellowish
37	s. soluble	.....	.....	.....	130.4°	.....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
	<b>Amyl</b>			
1	iodide.....	$\text{CH}_3(\text{CH}_2)_4\text{CH}_2\text{I}$ ....	198.06	1.5174 <sup>20</sup>
2	isobutyrate.....	$\text{C}_4\text{H}_7\text{O}_2\cdot\text{C}_6\text{H}_{11}$ .....	158.15	0.8592 <sup>13</sup>
3	valeriate.....	$\text{C}_4\text{H}_9\text{CO}_2\cdot\text{C}_6\text{H}_{11}$ .....	172.16	0.8812 <sup>0</sup>
4	Amylene n.....	$\text{CH}_3(\text{CH}_2)_4\text{CH}:\text{CH}_2$ .....	70.08	.....
5	Amylene.....	$\text{C}_6\text{H}_8\text{CH}:\text{CH}\cdot\text{CH}_3$ .....	70.08	.....
6	Amylene (K.).....	$(\text{CH}_2)_2\text{C}:\text{CHCH}_3$ .....	70.08	0.666††
7	Anethol.....	$\text{CH}_3\text{CH}:\text{CH}\cdot\text{C}_6\text{H}_4\cdot\text{O}\cdot\text{CH}_3$	148.10	0.9855‡
8	Angelic acid.....	$\text{C}_6\text{H}_7\text{CO}_2\text{H}$ .....	100.06	.....
9	Aniline.....	$\text{C}_6\text{H}_5\text{NH}_2$ .....	93.10	1.0276 <sup>12</sup>
10	" (K.).....	$\text{C}_6\text{H}_5\text{NH}_2$ .....	93.10	1.0214††
11	Anisalcohol.....	$\text{p}\cdot\text{CH}_3\text{O}\cdot\text{C}_6\text{H}_4\cdot\text{CH}_2\text{OH}$ .....	138.08	1.1093 <sup>20</sup>
12	Anisic acid.....	$\text{p}\cdot\text{CH}_3\text{O}\cdot\text{C}_6\text{H}_4\cdot\text{CO}_2\text{H}$ .....	152.06	1.364 <sup>4</sup> —1.385
13	aldehyde.....	$\text{p}\cdot\text{CH}_3\text{O}\cdot\text{C}_6\text{H}_4\cdot\text{CHO}$ .....	136.06	1.1228 <sup>18</sup>
14	" (K.).....	$\text{p}\cdot\text{CH}_3\text{O}\cdot\text{C}_6\text{H}_4\cdot\text{CHO}$ .....	136.06	1.120—1.122††
15	Anisol.....	$\text{C}_6\text{H}_5\cdot\text{O}\cdot\text{CH}_3$ .....	108.06	0.9878‡
16	" (K.).....	$\text{C}_6\text{H}_5\cdot\text{O}\cdot\text{CH}_3$ .....	108.06	0.9925††
17	Anthracene.....	$\text{C}_6\text{H}_4:(\text{CH})_2:\text{C}_6\text{H}_4$ .....	178.08	1.147
18	carbonic acid (α).....	$\text{C}_6\text{H}_4:(\text{CH}_2)_2:\text{C}_6\text{H}_3\text{CO}_2\text{H}$	222.08	.....
19	" " (β).....	$\text{C}_6\text{H}_4:(\text{CH}_2)_2:\text{C}_6\text{H}_3\text{CO}_2\text{H}$	222.08	.....
20	" " (γ).....	$\text{C}_6\text{H}_4:(\text{CH}_2)_2:\text{C}_6\text{H}_3\text{CO}_2\text{H}$	222.08	.....
21	Anthramine.....	$\text{C}_6\text{H}_4:(\text{CH})_2:\text{C}_6\text{H}_3\text{NH}_2$ .....	193.13	.....
22	Anthranil.....	$\text{C}_6\text{H}_4:\text{NH}\cdot\text{CO}$ .....	119.08	.....
23	Anthrapurpurin.....	$\text{C}_{14}\text{H}_8\text{O}_2(\text{OH})_8$ .....	256.06	.....
24	Anthraquinoline.....	$\text{C}_{17}\text{H}_{11}\text{N}$ .....	229.13	.....
25	Anthraquinone.....	$\text{C}_6\text{H}_4:(\text{CO})_2:\text{C}_6\text{H}_4$ .....	208.06	1.419—1.438
26	carbonic acid (β).....	$\text{C}_6\text{H}_4:(\text{CO})_2:\text{C}_6\text{H}_3\text{CO}_2\text{H}$	252.06	.....
27	dicarbonic acid (1, 3).....	$\text{C}_6\text{H}_2\text{O}_8$ .....	280.06	.....
28	Anthrol (m.).....	$\text{C}_6\text{H}_4(\text{CH})\cdot\text{C}_6\text{H}_4\text{OH}$ .....	194.08	.....
29	Antimony pentamethyl.....	$\text{Sb}(\text{CH}_3)_5$ .....	195.32	.....
30	triethyl.....	$\text{Sb}(\text{C}_2\text{H}_5)_3$ .....	207.32	1.3244 <sup>16</sup>
31	trimethyl.....	$\text{Sb}(\text{CH}_3)_3$ .....	165.27	1.523 <sup>16</sup>
32	Antipyrène.....	$\text{C}_{11}\text{H}_{12}\text{N}_2\text{O}$ .....	188.18	.....
33	Apple oil see Amyl. valeriate			
34	Arabin.....	$\text{C}_{10}\text{H}_{18}\text{O}_9$ .....	282.15	.....
35	Arabinose (d.).....	$\text{OHCH}_2(\text{CHOH})_3\text{CHO}$ .....	150.08	.....

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1		soluble			155.4 <sup>0739</sup>	
2					153-5°	
3	s. soluble	∞	∞		203.7°	
4	v. s. sol.	soluble	∞		37-42°	
5					39-40°	
6					36 <sup>0741</sup>	
7	v. s. sol.	∞	∞	21.6°	233° C.	leaflets
8	s. soluble	soluble	v. soluble	45.5°	185°	monoclinic
9	3	v. soluble	v. soluble	-8°	183.7° C.	
10	3.22 <sup>12-5</sup>	soluble	∞	-6-5°	183-4°	becomes br'n
11	insol.			45°	258.8°	needles
12	0.04 <sup>18</sup>	v. soluble	soluble	184.2° C.	275-80°	moncl. prisms
13	s. soluble	∞	∞	0°	248° C.	
14	s. soluble	soluble	∞		247-50°	usually yel...
15	insol.	soluble	soluble		155-5.6°	
16	insol.	soluble	∞	-37.8°	153-5°	
17	insol.	0.59 <sup>18</sup>	1.17 <sup>18</sup>	216.5°	351°	moncl. leaf. or tab.
18	v. v. s. sol.	v. soluble		206° dec.	dec.	{ silky yel. need./al.
19	insol.	soluble	s. soluble	260°	subl.	orange need.
20	insol.	soluble	soluble	280° abt.	subl.	sm. yel leaf/al.
21	v. v. s. sol.	s. soluble	s. soluble	238°		yel. need./al.
22	s. soluble	v. soluble		18°	210-15 dec.	oil.
23	s. sol. hot	v. soluble	s. soluble*	>330°	462° C.	lg. or need./al.
24	insol.	v. soluble	v. soluble	170°	446°	leaf. or tablets
25		{ 0.05 <sup>10</sup> 2.3 <sup>70</sup>	s. soluble	{ 275° 284.05° C.	380° C.	{ tetrag. yel. need.
26		v. s. sol.	v. v. s. sol.	282-4°	subl.	yel. pris./al.
27	v. v. s. sol.	v. sol.		>330°		yel. needles.
28	sol. acetone	v. soluble	v. soluble		200° dec.	need. or leaf/a
29	insol.				96-100°	
30	insol.	soluble	soluble		158.5 <sup>0739</sup>	
31	s. soluble	insol.	soluble		80.6°	moncl./w.
32	v. soluble	v. soluble	sl. soluble	113°	319° C. <sup>174</sup>	leaf. et.:
33						
34	soluble	insoluble				amorphous.
35	56 <sup>10</sup>	0.46 <sup>10</sup> 90%	158.5-95°			rhombic pris

\* Slightly soluble chloroform; insoluble benzene.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Arabinose (l.)	$\text{OHCH}_2(\text{CHOH})_3\text{CHO}$	150.08	
2	Arabite	$\text{CH}_2\text{OH}(\text{CHOH})_4\text{CH}_2\text{OH}$	152.10	
3	Arachidic acid	$\text{C}_{20}\text{H}_{40}\text{O}_2$	312.32	
4	Arbutin	$\text{C}_{12}\text{H}_{16}\text{O}_7 + \frac{1}{2}\text{H}_2\text{O}$	568.27	
5	Arsenic-diethyl	$[\text{As}(\text{C}_2\text{H}_5)_2]_2$	266.16	1. +
6	Asparagine (l.)	$\text{C}_2\text{H}_3\text{NH}_2\text{CO}_2\text{HCONH}_2$	132.14	1.548 <sup>4</sup>
7	Atronic acid	$\text{C}_{17}\text{H}_{14}\text{O}_2$	250.12	
8	Atropic acid	$\text{CH}_2:\text{C}(\text{C}_6\text{H}_5).\text{CO}_2\text{H}$	148.06	
9	Aurine	$\text{C}_{19}\text{H}_{14}\text{O}_2$	290.12	
10	Azelaic acid	$\text{CO}_2\text{H}(\text{CH}_2)_7\text{CO}_2\text{H}$	188.13	
11	Azobenzene	$\text{C}_6\text{H}_5\text{N}_2\text{C}_6\text{H}_5$	182.16	1.203
12	Azobenzoic acid (o.)	$(\text{CO}_2\text{H.C}_6\text{H}_4)_2\text{N}_2$	270.16	
13	" (m.)	$(\text{CO}_2\text{H.C}_6\text{H}_4)_2\text{N}_2 + \frac{1}{2}\text{H}_2\text{O}$	279.17	
14	" (p.)	$(\text{CO}_2\text{H.C}_6\text{H}_4)_2\text{N}_2 + \frac{1}{2}\text{H}_2\text{O}$	279.17	
15	Azonaphthaline (aa.)	$\text{C}_{10}\text{H}_7\text{N}:\text{N.C}_{10}\text{H}_7$	282.20	
16	Azophenetol (o.)	$(\text{C}_6\text{H}_5\text{O.C}_6\text{H}_4)_2\text{N}_2$	270.23	
17	" (p.)	$(\text{C}_6\text{H}_5\text{O.C}_6\text{H}_4)_2\text{N}_2$	270.23	
18	Azophenol (o.)	$(\text{OH.C}_6\text{H}_4)_2\text{N}_2$	214.16	
19	" (p.)	$(\text{OH.C}_6\text{H}_4)_2\text{N}_2$	214.16	
20	Azotoluene (oo.)	$(\text{CH}_3\text{C}_6\text{H}_4)_2\text{N}_2$	210.20	
21	" (mm.)	$(\text{CH}_3\text{C}_6\text{H}_4)_2\text{N}_2$	210.20	
22	" (pp.)	$(\text{CH}_3\text{C}_6\text{H}_4)_2\text{N}_2$	210.20	
23	Azoxybenzene	$(\text{C}_6\text{H}_5)_2\text{N}_2\text{O}$	198.16	
24	Azoxybenzoic acid (o.)	$(\text{CO}_2\text{H.C}_6\text{H}_4)_2\text{N}_2\text{O}$	286.16	
25	" (m.)	$(\text{CO}_2\text{H.C}_6\text{H}_4)_2\text{N}_2\text{O}$	286.16	
26	" (p.)	$(\text{CO}_2\text{H.C}_6\text{H}_4)_2\text{N}_2\text{O}$	286.16	
27	Barbituric acid	$\text{CO}:(\text{NH.CO})_2:\text{CH}_2 + 2\text{H}_2\text{O}$	164.05	
28	Beberine	$\text{C}_{18}\text{H}_{21}\text{NO}_3$	299.21	
29	Behenic acid	$\text{C}_{22}\text{H}_{44}\text{O}_2$	340.33	
30	Behenolic acid	$\text{C}_{22}\text{H}_{40}\text{O}_2$	336.32	
31	Benzal chloride	$\text{C}_6\text{H}_5\text{CHCl}_2$	160.95	1.295 <sup>18</sup>
32	Benzalcohol	$\text{C}_6\text{H}_5\text{CH}_2\text{OH}$	108.06	1.043 <sup>19</sup>
33	" (K.)	$\text{C}_6\text{H}_5\text{CH}_2\text{OH}$	108.06	1.047 <sup>18</sup>

\* Soluble KOH.

† Soluble benzene.

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	60 <sup>10</sup>	0.42 <sup>9</sup> /90%	insol.	160° abt.	.....	rhombic/al.
2	v. soluble	s. soluble	.....	102°	.....	warts
3	insol.	s. soluble	soluble	77°	.....	leaflets
4	v. sol. hot	soluble	v. v. s. sol.	165-6°	.....	silky needles.
5	insol.	soluble	soluble	.....	185-90°	.....
6	{ 1.79 <sup>10</sup> 52.9 <sup>100</sup>	insol.	insol.	dec.	dec.	long rhombic.
7	v. v. s. sol.	v. soluble	.....	164°	.....	pris./acet. amor./w.
8	0.14 <sup>19</sup>	.....	v. sol. CS <sub>2</sub>	106-7°	267°	moncl. tab.al.
9	insol.	soluble	sol.,sol.KOH	abt. 220°	.....	red rhombic.
10	0.24 <sup>20</sup> -2.2 <sup>25</sup>	v. soluble	v. soluble	106.2°	abt.360 dec.	leaf., needles.
11	insol.	8.5 <sup>20</sup>	sol., v. sol. lig.	68°	293°	or. yel.moncl. leaf.
12	s. soluble	mod. sol.	.....	237° dec.	.....	yel. needles.
13	v. s. sol.	s. soluble	s. soluble	dec.	.....	amor. powder
14	insol.	insol.	insol.	dec.	dec.	reddish amor.
15	insol.	s. soluble	sol. acet.†	190°	subl.	red need. acet
16	insol.	soluble	sol.,sol.HCl	131°	240° dec.	red pris./al...
17	insol.	s. soluble	v. soluble	160°	dist.	orange leaf ...
18	insol.	0.33	v. sol.*	171°	subl.	yel. leaflets .
19	s. soluble	v. soluble	v. sol.†	204°	.....	brown triclín.
20	insoluble §	6.03 <sup>14</sup>	147 <sup>160</sup>	55°	.....	red moncl. prisms/et.
21	insol.	v. soluble	v. soluble	54-5°	.....	or. red rhomb.
22	insol.	mod. sol.	v. soluble	144°	.....	or.y.need./lig.
23	insol.	17.5	soluble	36°	dec.	yel. rhombic needles
24	v. s. sol.	mod. sol.	mod. sol.	237-242°	dec.	yel. triclín. tab./al.
25	insol.	s. soluble	s. soluble	320°	.....	mic. needles .
26	.....	insol.	sol. pyridin	no m. p.	dec. 240°	yellow prisms
27	s. soluble	.....	.....	dec.	.....	rhombic.....
28	s. soluble	v. sol.†	sol.	214°	.....	pris. meth. al.
29	insol.	v. s. sol.	soluble	84	.....	needles
30	insol.	v. soluble	.....	57.5°	.....	need./abs. al.
31	.....	.....	.....	.....	212.4°	.....
32	4.0 <sup>17</sup>	.....	.....	.....	206.5° C.	.....
33	4.0 <sup>17</sup>	soluble	∞	.....	202-5°	.....

† Soluble acetone and chloroform.

§ Very soluble benzene.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Benzaldehyde . . . . .	$C_6H_5 \cdot CHO$ . . . . .	106.05	1.0504 <sup>2</sup>
2	Benzaldoxime ( $\alpha$ ) (anti) . . . . .	$C_6H_5 \cdot CH : NOH$ . . . . .	121.10	1.11 <sup>20</sup>
3	“ ( $\beta$ ) . . . . .	$C_6H_5 \cdot CH : NOH$ . . . . .	121.10	1
4	Benzamide . . . . .	$C_6H_5 \cdot CONH_2$ . . . . .	121.10	1.341 <sup>4</sup>
5	Benzanilid . . . . .	$C_6H_5 \cdot CONHC_6H_5$ . . . . .	197.13	1.306–1.321 <sup>4</sup>
6	Benzene . . . . .	$C_6H_6$ . . . . .	78.05	0.8791 <sup>2</sup>
7	“ (K.) . . . . .	$C_6H_6$ . . . . .	78.05	0.8764 <sup>4</sup>
8	hexabromide . . . . .	$C_6H_6Br_6$ . . . . .	457.81	1.87 <sup>20</sup>
9	hexachloride . . . . .	$C_6H_6Cl_6$ . . . . .	290.75	1.87 <sup>20</sup>
10	sulphuric acid . . . . .	$C_6H_5 \cdot SO_3H$ . . . . .	142.11	1.378 <sup>23</sup>
11	sulphone amide . . . . .	$C_6H_5 \cdot SO_2NH_2$ . . . . .	157.16	1.201 <sup>21</sup>
12	sulphone chloride . . . . .	$C_6H_5 \cdot SO_2Cl$ . . . . .	176.55	1.231–1.247 <sup>4</sup>
13	sulphonic acid . . . . .	$C_6H_5 \cdot SO_3H + H_2O$ . . . . .	176.13	182.08
14	Benzenylamidine . . . . .	$C_6H_5 \cdot CNH \cdot NH_2$ . . . . .	120.10	182.08
15	Benzidine (p.) . . . . .	$NH_2 \cdot C_6H_4 \cdot C_6H_4 \cdot NH_2$ . . . . .	184.14	195.39
16	Benzil . . . . .	$C_6H_5 \cdot CO \cdot COC_6H_5$ . . . . .	210.08	1.380 <sup>14</sup>
17	Benzilic acid . . . . .	$(C_6H_5)_2 \cdot C(OH) \cdot CO_2H$ . . . . .	228.10	164.06
18	Benzoic acid . . . . .	$C_6H_5 \cdot CO_2H$ . . . . .	122.05	244.10
19	anhydride . . . . .	$(C_6H_5 \cdot CO)_2O$ . . . . .	226.08	226.08
20	Benzophenone . . . . .	$(C_6H_5)_2CO$ . . . . .	182.08	226.08
21	“ alotropic . . . . .	$(C_6H_5)_2CO$ . . . . .	182.08	226.08
22	Benzotrichloride . . . . .	$C_6H_5 \cdot CCl_3$ . . . . .	195.39	226.08
23	Benzoyl-acetic acid . . . . .	$C_6H_5 \cdot COCH_2CO_2H$ . . . . .	164.06	226.08
24	benzoic acid (o.) . . . . .	$C_6H_5 \cdot COC_6H_4 \cdot CO_2H + H_2O$ . . . . .	244.10	226.08
25	“ “ (m.) . . . . .	$C_6H_5 \cdot COC_6H_4 \cdot CO_2H$ . . . . .	226.08	226.08
26	“ “ (p.) . . . . .	$C_6H_5 \cdot COC_6H_4 \cdot CO_2H$ . . . . .	226.08	226.08
27	bromide . . . . .	$C_6H_5COBr$ . . . . .	185.00	226.08
28	chloride . . . . .	$C_6H_5 \cdot COCl$ . . . . .	140.49	226.08
29	“ (K.) . . . . .	$C_6H_5 \cdot COCl$ . . . . .	140.49	226.08
30	cyanide . . . . .	$C_6H_5 \cdot COCN$ . . . . .	131.08	226.08
31	fluoride . . . . .	$C_6H_5COF$ . . . . .	124.04	226.08
32	iodide . . . . .	$C_6H_5 \cdot COI$ . . . . .	231.01	226.08
33	Benzyl acetate . . . . .	$CH_3 \cdot CO_2 \cdot CH_2 \cdot C_6H_5$ . . . . .	150.08	226.08
34	amine . . . . .	$C_6H_5 \cdot CH_2 \cdot NH_2$ . . . . .	107.11	226.08
35	benzoate . . . . .	$C_6H_5 \cdot CO_2 \cdot CH_2 \cdot C_6H_5$ . . . . .	212.10	226.08
36	bromide . . . . .	$C_6H_5 \cdot CH_2Br$ . . . . .	171.02	226.08
37	carbinol . . . . .	$C_6H_5 \cdot CH_2 \cdot CH_2OH$ . . . . .	122.08	226.08
38	chloride . . . . .	$C_6H_5 \cdot CH_2Cl$ . . . . .	126.51	226.08

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	0.3	soluble	.....	-13.5°	179.5°	.....
2	v. soluble	v. soluble	v. soluble	35°	200°	leaflets. ....
3	sol. bz.	.....	v. soluble	128-30°	.....	rhombic tab. or need./et.
4	s. soluble	v. soluble	v. soluble	128°	290°	moncl. tab. .
5	insol.	soluble	s. soluble	160-1°	dist.	leaflets
6	insol.	soluble	soluble	5.42°	80.36°	rhombic pris.
7	0.01 abt.	soluble	∞	5.4°	80-1°	rhombic pris.
8	.....	s. soluble	s. soluble	212°	.....	monoclinic. .
9	4.35 <sup>15</sup> chlo.	6.5 <sup>18</sup> bz.	v. sol. anil.	157°	dec. 288°	monoclinic
10	s. soluble	v. soluble	v. soluble	83-4°	dec. 100°	long prisms. .
11	0.43	v. soluble	v. soluble	147-8°	.....	need. or leaf..
12	insol.	v. soluble	soluble	14.5°	246-7° dec.	.....
13	v. v. sol.	v. v. sol.	insol.	43-4°	.....	large leaflets.
14	mod. sol.	v. sol.	s. soluble	75-80°	.....	crystalline
15	0.04 <sup>12</sup>	soluble	2.2	122°	360° +	leaflets/w. ....
16	insol.	v. soluble	v. soluble *	95°	346-8° C. †	hexag. pris./e
17	s. soluble	v. soluble	v. soluble	150°	dec. 180°	moncl. need..
18	0.268 <sup>17</sup>	48 <sup>20</sup>	31 <sup>20</sup>	121.2° C.	249.2° C.	moncl. need. or leaflets
19	insol.	mod. sol.	mod. sol.	42°	360°	rhombic pris.
20	insol.	v. soluble	v. soluble	48-8.5°	306° C.	lg. rhom. pris.
21	.....	v. soluble	v. soluble	26-6.5°	306°	large moncl..
22	dec.	.....	.....	-22.5°	213-4°	.....
23	s. soluble	v. soluble	v. soluble	103-4° dec..	.....	mic. needles.
24	mod. sol.	.....	.....	93°, 127° anhy	.....	tricl. need./w.
25	v. s. sol.	v. soluble	v. sol.	161-2°	.....	large needles.
26	v. s. sol. hot	v. soluble	v. soluble	194°	sub.	moncl. leaf/w.
27	.....	soluble	.....	0°	218-9°	.....
28	dec.	dec.	.....	-1°	198° <sup>748</sup>	.....
29	v. s. sol.	sol. dec.	∞	-1 -0°	196-8°	.....
30	insol.	.....	.....	32-3°	206-8°	tablets. ....
31	.....	.....	.....	.....	161.5° <sup>748</sup>	.....
32	dec.	soluble	.....	dec.	dec.	leaflets. ....
33	.....	.....	.....	.....	206°	.....
34	∞	∞	∞	.....	183° C.	.....
35	.....	soluble	.....	<20°	323-4° C.	leaflets. ....
36	.....	.....	.....	.....	198-9°	.....
37	.....	soluble	.....	.....	212°	.....
38	insoluble	soluble	soluble	-48.0°	179°	.....

\* Soluble at KOH.

† Decomposes.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
	<b>Benzyl</b>			
1	cyanide . . . . .	$C_6H_5.CH_2.CN$ . . . . .	117.10	1.0171 <sup>Y</sup>
2	disulphide . . . . .	$(C_6H_5.CH_2)_2S_2$ . . . . .	246.24	.....
3	ether . . . . .	$(C_6H_5.CH_2)_2O$ . . . . .	198.12	1.0359 <sup>16</sup>
4	iodide . . . . .	$C_6H_5.CH_2.I$ . . . . .	218.02	1.7335 <sup>25</sup>
5	ketone . . . . .	$(C_6H_5.CH_2)_2CO$ . . . . .	210.13	.....
6	mercaptan . . . . .	$C_6H_5.CH_2.SH$ . . . . .	124.13	1.058 <sup>20</sup>
7	mustard oil . . . . .	$C_6H_5.CH_2.NCS$ . . . . .	149.16	1. +
8	sulphide . . . . .	$(C_6H_5.CH_2)_2S$ . . . . .	214.18	.....
9	sulphocyanide . . . . .	$C_6H_5.CH_2.SCN$ . . . . .	149.16	.....
10	sulphone . . . . .	$(C_6H_5.CH_2)_2SO_2$ . . . . .	246.18	.....
11	Berberonic acid . . . . .	$2:4:5C_6H_4N(CO_2H)_2.2H_2O$ . . . . .	247.11	.....
12	Beryllium ethyl . . . . .	$Be(C_2H_5)_2$ . . . . .	67.18	.....
13	Bi-anthyl . . . . .	$C_{20}H_{18}$ . . . . .	354.15	.....
14	Bilirubin . . . . .	$C_{46}H_{74}N_4O_6$ . . . . .	286.23	.....
15	Bismuth tri-ethyl . . . . .	$Bi(C_2H_5)_3$ . . . . .	295.62	1.82
16	Biuret . . . . .	$NH(CONH_2)_2.H_2O$ . . . . .	103.16	.....
17	Borneol (i.) . . . . .	$C_{10}H_{17}OH$ . . . . .	154.15	1.011
18	" (d.) . . . . .	$C_{10}H_{17}OH$ . . . . .	154.15	1.011
19	Bornyl amine . . . . .	$C_{10}H_{17}NH_2$ . . . . .	153.20	.....
20	Brassicic acid . . . . .	$C_{22}H_{42}O_2$ . . . . .	338.34	.....
21	Bromacetic acid . . . . .	$CH_2Br.CO_2H$ . . . . .	138.99	.....
22	Bromacetylene . . . . .	$CH_2.CBr$ . . . . .	104.97	.....
23	Bromal . . . . .	$CBBr_2.CO_2H$ . . . . .	280.89	3.34
24	Bromaniline (o.) . . . . .	$BrC_6H_4NH_2$ . . . . .	172.05	.....
25	" (m.) . . . . .	$BrC_6H_4NH_2$ . . . . .	172.05	.....
26	" (p.) . . . . .	$BrC_6H_4NH_2$ . . . . .	172.05	.....
27	Brombenzamide (o.) . . . . .	$BrC_6H_4CONH_2$ . . . . .	200.05	.....
28	" (m.) . . . . .	$BrC_6H_4CONH_2$ . . . . .	200.05	.....
29	" (p.) . . . . .	$BrC_6H_4CONH_2$ . . . . .	200.05	.....
30	Brombenzene . . . . .	$C_6H_5.Br$ . . . . .	157.00	1.4898 <sup>Y</sup>
31	Brombenzoic acid (o.) . . . . .	$BrC_6H_4.CO_2H$ . . . . .	201.00	.....
32	" " (m.) . . . . .	$BrC_6H_4.CO_2H$ . . . . .	201.00	.....
33	" " (p.) . . . . .	$BrC_6H_4.CO_2H$ . . . . .	201.00	.....
34	Bromethylene . . . . .	$CH_2:CHBr$ . . . . .	106.99	1.5167 <sup>Y</sup>
35	Bromine cyanide . . . . .	$Br.CN$ . . . . .	106.00	.....
36	Brommalonic acid . . . . .	$CHBr.CO_2H$ . . . . .	182.99	.....
37	Bromnaphthaline (α) . . . . .	$C_{10}H_7.Br$ . . . . .	207.02	1.4887 <sup>10</sup>
38	" (β) . . . . .	$C_{10}H_7.Br$ . . . . .	207.02	1.605 <sup>0</sup>
39	Bromoform . . . . .	$CHBr_3$ . . . . .	252.89	2.8341 <sup>‡</sup>

\* Soluble  $CS_2$  and benzene; 0.17 parts soluble in 100 parts chloroform. Very soluble in acetone and ligroin.



Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	insoluble	soluble	.....	.....	231.7° C.	.....
2	sol. benzene	s. soluble	v. soluble	71°-72°	.....	leaflets/al....
3	.....	.....	.....	.....	295-8°	oily.....
4	s. sol. CS <sub>2</sub>	.....	.....	24.1°	decomp.	crystalline...
5	.....	.....	.....	33.9°	330.6° C.	large cryst/et
6	.....	.....	.....	.....	194-5°	.....
7	insol.	.....	.....	.....	243°	.....
8	insol.	soluble	soluble	49°	.....	rhomb. tab./e
9	insol.	v. soluble	v. soluble	41°	230-5°	prisms.....
10	v. sol. acet.	s. soluble	v. sol. bz.	150°	.....	flat needles/w
11	v. s. sol.	v. s. sol.	insoluble	235°	.....	triclinic pris.
12	.....	.....	.....	.....	185-8°	.....
13	.....	.....	.....	300°	.....	leaf. toluene
14	insoluble	v. s. sol.	v. v. s. sol.*	.....	.....	amorphous..
15	insoluble	v. soluble	v. soluble †	.....	107°	oily
16	1.54 <sup>16</sup>	soluble	.....	190°	.....	needles.....
17	v. s. sol.	v. soluble	v. soluble	210.5°	sublimes	hexag. leaf./li.
18	v. s. sol.	v. soluble	v. soluble ‡	203-4°	211-12°	hexag. leaf...
19	v. v. s. sol.	v. v. sol.	v. v. sol.	159-60°	199-200°	.....
20	0.74/ <sup>24</sup>	v. s. sol.	soluble §	114°	282° <sup>30</sup>	leaflets/alc...
21	∞	∞	∞	49-50°	208°	hexagonal...
22	v. soluble	.....	.....	.....	.....	liquid at 3 at.
23	decomp.	.....	.....	.....	174.0°	.....
24	.....	soluble	.....	31-31.5°	250-1°	crystalline...
25	.....	soluble	.....	18-18.5°	251°	crystalline...
26	insol.	v. soluble	v. soluble	66.4°	dec.	rhombic.....
27	sol. hot	soluble	s. soluble	155-6°	.....	needles/w....
28	s. sol. hot	v. soluble	.....	155.3°	.....	leaflets/dil.al.
29	v. s. sol. hot	mod. sol.	s. soluble	189.5°	.....	rectang. tab.
30	.....	soluble	.....	-31.1°	156.6°	.....
31	s. soluble	v. soluble	v. soluble	150°	subl.	large need./w.
32	s. soluble	v. soluble	v. soluble	155°	> 280°	needles.. [w.
33	v.v.s.sol.hot	v. soluble	v. soluble	251°	.....	need. /et-leaf.
34	.....	.....	.....	.....	16° <sup>750</sup>	.....
35	soluble	soluble	.....	52°	61.3° <sup>750</sup>	needles.....
36	.....	v. soluble	v. soluble	.....	.....	needles.....
37	∞ bz.	∞ abs.	∞	4-5°	279.5° <sup>753</sup>	prisms.....
38	sol. bz.	6	v. soluble	59°	281-2° C.	rhombic leaf.
39	insol.	.....	.....	9°	151.2° C.	.....

† 16 parts dissolve in 100 parts lig. at 20°, and 24 parts in 100 parts benz.

§ Insoluble ligroin and benzene.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Bromoform Phg. IV (K.)	$\text{CHBr}_3$	252.89	2.829-2.832
2	Bromphenol (o.)	$\text{BrC}_6\text{H}_4\text{OH}$	173.00	
3	" (m.)	$\text{BrC}_6\text{H}_4\text{OH}$	173.00	
4	" (p.)	$\text{BrC}_6\text{H}_4\text{OH}$	173.00	1.840 <sup>18</sup>
5	Brompyridine (3)	$\text{C}_5\text{H}_4\text{N.Br}$	158.03	1.632 <sup>19</sup>
6	Bromtoluene (o.)	$\text{BrC}_6\text{H}_4\text{CH}_3$	171.02	1.4222 <sup>9</sup>
7	" (m.)	$\text{BrC}_6\text{H}_4\text{CH}_3$	171.02	1.4099 <sup>9</sup>
8	" (p.)	$\text{BrC}_6\text{H}_4\text{CH}_3$	171.02	1.3898 <sup>9</sup>
9	Butadiene 1, 2	$\text{CH}_2:\text{C}:\text{CHCH}_3$	54.05	
10	" 1, 3	$\text{CH}_2:\text{CH}:\text{CH}:\text{CH}_2$	54.05	
11	Butane	$\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_3$	58.08	0.60 <sup>0</sup> 2.046(a)
12	Buten(1)ic(4) acid	$\text{CH}_2:\text{CH}.\text{CH}_2.\text{CO}_2\text{H}$	86.05	
13	Butyl acetate	$\text{CH}_3\text{CO}_2\text{C}_4\text{H}_9$	116.10	0.8817 <sup>20</sup>
14	acetylene	$\text{C}_2\text{H}_2$	82.08	
15	alcohol (n.)	$\text{CH}_3(\text{CH}_2)_2\text{CH}_2\text{OH}$	74.08	0.8098 <sup>9</sup>
16	" (K.)	$\text{CH}_3(\text{CH}_2)_2\text{CH}_2\text{OH}$	74.08	0.807-0.808 <sup>11</sup>
17	" sec.	$\text{CH}_3\text{CHOH}.\text{CH}_2\text{CH}_3$	74.08	0.819 <sup>22</sup>
18	amine, (n.)	$\text{CH}_3(\text{CH}_2)_2\text{CH}_2\text{NH}_2$	73.13	0.7401 <sup>20</sup>
19	benzene	$\text{C}_6\text{H}_6$	78.12	0.864 <sup>15</sup>
20	benzoate	$\text{C}_6\text{H}_5\text{CO}_2\text{C}_2\text{H}_5$	148.14	1.000 <sup>20</sup>
21	bromide	$\text{CH}_3(\text{CH}_2)_2\text{CH}_2\text{Br}$	173.04	1.2792 <sup>20</sup>
22	butyrate (n.)	$\text{C}_3\text{H}_7\text{CO}_2\text{C}_2\text{H}_5$	144.13	0.8878 <sup>0</sup>
23	carbinol (tert.)	$(\text{CH}_3)_3\text{C}.\text{CH}_2\text{OH}$	88.10	0.8122 <sup>20</sup>
24	chloride	$\text{CH}_3(\text{CH}_2)_2\text{Cl}$	92.52	0.8874 <sup>20</sup>
25	cyanide	$\text{CH}_3(\text{CH}_2)_2\text{CN}$	83.04	0.9995 <sup>24</sup>
26	ether	$(\text{C}_2\text{H}_5)_2\text{O}$	130.15	0.769 <sup>20</sup>
27	" (sec.)	$(\text{CH}_3(\text{C}_2\text{H}_5)\text{CH})_2\text{O}$	130.15	0.7616 <sup>15</sup>
28	formate	$\text{HCO}_2\text{C}_2\text{H}_5$	102.08	0.9108
29	iodide	$\text{CH}_3(\text{CH}_2)_2\text{CH}_2\text{I}$	184.04	1.6166 <sup>9</sup>
30	mercaptan	$\text{CH}_3(\text{CH}_2)_2\text{CH}_2\text{SH}$	90.14	0.858 <sup>0</sup>
31	mustard oil	$\text{CH}_3\text{CH}_2\text{CH}_2\text{NCS}$	115.17	
32	phenyl ketone	$\text{C}_6\text{H}_5\text{CO}.\text{C}_6\text{H}_5$	162.11	
33	sulphide	$(\text{C}_2\text{H}_5)_2\text{S}$	146.21	0.8523 <sup>0</sup>
34	Butylene	$\text{C}_2\text{H}_5\text{CH}:\text{CH}_2$	56.06	
35	Butyric acid (n.)	$\text{CH}_3(\text{CH}_2)_2\text{CO}_2\text{H}$	88.06	0.9599 <sup>9</sup>
36	" (K.)	$\text{CH}_3(\text{CH}_2)_2\text{CO}_2\text{H}$	88.06	0.956 <sup>11</sup>
37	aldehyde	$\text{CH}_3(\text{CH}_2)_2\text{CHO}$	72.06	0.8170 <sup>9</sup>
38	anhydride	$(\text{CH}_3(\text{CH}_2)_2\text{CO})_2\text{O}$	158.12	0.978 <sup>15</sup>
39	Cacodyl	$(\text{CH}_3)_2\text{As}.\text{As}(\text{CH}_3)_2$	210.10	1. +
40	chloride	$(\text{CH}_3)_2\text{AsCl}$	140.50	1. +
41	Cacodylic acid	$(\text{CH}_3)_2\text{AsO.OH}$	138.05	
42	Cacodyl oxide	$((\text{CH}_3)_2\text{As})_2\text{O}$	226.10	1.462 <sup>15</sup>

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	v. s. sol.	soluble	∞	7°	148–50°	.....
2	.....	.....	.....	.....	194–5°	oil.....
3	.....	.....	.....	32–3°	236–6.5°	leaflets.....
4	sol. chlo.	v. soluble	v. soluble	63–4°	238°	tetrag./chlo..
5	v. s. sol.	.....	.....	.....	169.5°	oil.....
6	insol.	soluble	.....	–25.9°	180.3° <sup>754</sup>	.....
7	insol.	soluble	.....	–39.8°	183.7°	.....
8	insol.	soluble	.....	28.5°	185.2°	rhombic.....
9	.....	.....	.....	.....	18–19°	.....
10	.....	.....	.....	.....	1°	.....
11	insol.	1800 cc.	.....	.....	1°	.....
12	.....	.....	.....	.....	168°	.....
13	s. soluble	∞	∞	.....	125.1° <sup>740</sup>	.....
14	.....	.....	.....	.....	68–70°	.....
15	8.3	∞	∞	.....	117.02°C.	.....
16	s. soluble	∞	∞	.....	115–7°	.....
17	v. soluble	.....	.....	.....	99.8°	.....
18	∞	soluble	soluble	.....	75.5° <sup>740</sup>	.....
19	.....	.....	.....	.....	180°	.....
20	.....	.....	.....	< –20°	247.3° C.	thick oil.....
21	.....	.....	.....	.....	99.88° C.	.....
22	.....	.....	.....	.....	164.8° C.	.....
23	s. soluble	.....	.....	52–3°	113–4°	.....
24	.....	.....	.....	.....	77.96° C.	.....
25	insol.	.....	.....	.....	160° <sup>784</sup>	.....
26	soluble	.....	.....	.....	140.9°	.....
27	.....	∞	∞	.....	122–2.5°	.....
28	.....	.....	.....	.....	106.9°	.....
29	.....	.....	.....	.....	129.9°	.....
30	.....	.....	.....	.....	97–8°	.....
31	.....	.....	.....	.....	167°	.....
32	.....	.....	.....	.....	237.5–8.5°	.....
33	insol.	.....	.....	.....	182°	.....
34	.....	.....	.....	.....	–5°	.....
35	∞	∞	∞	–7.9° C.	162.3° C.	.....
36	∞	∞	∞	abt. –4°	161–3°	.....
37	3.6	.....	.....	.....	73–4°	.....
38	.....	.....	.....	.....	191–3°	.....
39	s. soluble	soluble	soluble	–6°	170°	oil.....
40	insol.	.....	.....	.....	100°	.....
41	v. soluble	soluble	.....	200°	.....	rhomb. pris. .
42	insol.	.....	.....	–25°	120°	.....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Cacodyl sulphide.....	$((\text{CH}_3)_2\text{As})_2\text{S}$ .....	242.16	.....
2	trichloride.....	$(\text{CH}_3)_3\text{AsCl}_3$ .....	211.40	.....
3	Cadmium methyl.....	$\text{Cd}(\text{CH}_3)_2$ .....	142.45	.....
4	Caffeic acid.....	$\text{C}_6\text{H}_5\text{O}_4 + \frac{1}{2}\text{H}_2\text{O}$ .....	189.07	.....
5	Caffeine.....	$\text{C}_8\text{H}_{10}\text{N}_4\text{O}_2 + \text{H}_2\text{O}$ .....	212.26	1.23 <sup>19</sup>
6	Camphene (i.).....	$\text{C}_{10}\text{H}_{16}$ .....	136.12	.....
7	" (d. or l.).....	$\text{C}_{10}\text{H}_{16}$ .....	136.12	.....
8	Campholene.....	$(\text{CH}_3)_2\text{C}_6\text{H}_7$ .....	124.13	0.8034 <sup>20</sup>
9	Campholic acid.....	$\text{C}_9\text{H}_{17}\text{CO}_2\text{H}$ .....	170.15	.....
10	Camphor (d.).....	$\text{C}_{10}\text{H}_{16}\text{O}$ .....	152.13	0.992 <sup>10</sup>
11	Camphoric acid (i.).....	$\text{C}_8\text{H}_{14}(\text{CO}_2\text{H})_2$ .....	200.13	.....
12	" " (d.).....	$\text{C}_8\text{H}_{14}(\text{CO}_2\text{H})_2$ .....	200.13	1.193
13	" anhydride.....	$\text{C}_{10}\text{H}_{14}\text{O}_3$ .....	182.12	1.194 <sup>20</sup>
14	Camphronic acid (l.).....	$\text{C}_9\text{H}_{14}\text{O}_3$ .....	218.12	.....
15	Cantharidine.....	$\text{C}_{10}\text{H}_{12}\text{O}_2$ .....	196.10	.....
16	Caoutchene.....	$\text{C}_5\text{H}_8$ .....	54.05	0.65 <sup>-20</sup>
17	Capric acid.....	$\text{CH}_3(\text{CH}_2)_8\text{CO}_2\text{H}$ .....	172.16	0.8858 <sup>2</sup>
18	" " (K.).....	$\text{CH}_3(\text{CH}_2)_8\text{CO}_2\text{H}$ .....	172.16	0.930 <sup>2</sup>
19	Caproic acid.....	$\text{CH}_3(\text{CH}_2)_4\text{CO}_2\text{H}$ .....	116.10	0.9289 <sup>20</sup>
20	Caprylic acid.....	$\text{CH}_3(\text{CH}_2)_6\text{CO}_2\text{H}$ .....	144.13	0.9100 <sup>2</sup>
21	" anhydride.....	$(\text{C}_8\text{H}_{15}\text{O})_2\text{O}$ .....	270.24	.....
22	Carbanil.....	$\text{C}_6\text{H}_5\text{NCO}$ .....	119.08	1.092 <sup>15</sup>
23	Carbanilid.....	$\text{CO}(\text{NHC}_6\text{H}_5)_2$ .....	212.18	.....
24	Carbazol.....	$(\text{C}_6\text{H}_4)_2\text{NH}$ .....	167.11	.....
25	Carbazoline.....	$\text{C}_{12}\text{H}_{15}\text{N}$ .....	173.16	.....
26	Carbon diselenide.....	$\text{CSe}_2$ .....	170.40	.....
27	disulphide.....	$\text{CS}_2$ .....	76.12	1.2598 <sup>25</sup>
28	hexachloride.....	$\text{C}_3\text{Cl}_6$ .....	236.70	2.011
29	monoxide.....	$\text{CO}$ .....	28.00	0.9674
30	oxysulphide.....	$\text{COS}$ .....	60.06	2.1040
31	suboxide.....	$\text{OC}:\text{C}:\text{CO}$ .....	68.00	.....
32	tetrabromide.....	$\text{CBr}_4$ .....	331.84	3.42
33	tetrachloride.....	$\text{CCl}_4$ .....	153.80	1.6084 <sup>20.5</sup> <sub>4</sub>
34	" (K.).....	$\text{CCl}_4$ .....	153.80	1.591 <sup>21</sup>
35	tetraiodide.....	$\text{CI}_4$ .....	519.88	4.32 <sup>20</sup>
36	Carbonyl chloride.....	$\text{COCl}_2$ .....	98.90	1.392 <sup>2</sup>
37	Carbostyrl.....	$\text{Py}_2, \text{C}_6\text{H}_5\text{NOH}$ .....	145.10	.....
38	Carboxy-cinnamic ac. (o.).....	$\text{CO}_2\text{H.C}_6\text{H}_4.\text{CH}:\text{CH}.\text{CO}_2\text{H}$ .....	192.06	.....

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	soluble	soluble	.....	.....	.....	.....
2	.....	.....	.....	dec. 40-50	.....	.....
3	dec.	.....	.....	.....	104-5°?	.....
4	soluble	v. soluble	.....	195°	dec.	yel. moncl. pris./w. glit. needles
5	{ 1.35 <sup>16</sup> * }	0.61 abs. <sup>16</sup> 3.12 abs. <sup>78</sup>	0.044 <sup>16</sup> 36 <sup>35</sup>	234-5°	sub.	.....
6	.....	v. soluble	v. soluble	47°	157° C.	feath. need...
7	.....	.....	.....	51-2°	159° C.	feath. cryst. /al.
8	.....	v. soluble	v. soluble	.....	138°	.....
9	0.016 <sup>18</sup>	soluble	soluble	105-6°	255°	leaf./et. + al.
10	v. s. sol.	120 <sup>12</sup>	v. soluble	176.4°	205.3°	hexagonal
11	0.239	33	28	208°	.....	crystals
12	0.625 <sup>12</sup>	112	insol.	180.7° C.	dec.	monoclinic ..
13	v. s. sol.	v. soluble	v. soluble	220-1°	dec. 270°	rhb. pris./al.
14	6.0	v. soluble	v. soluble	136-7°	dist.	sm. needles ..
15	0.003	100	0.11	218° C.	.....	trimet. tab...
16	.....	.....	.....	-10°	14.5°	.....
17	v. s. sol.	soluble	soluble	31.3°	268.4° C.	needles
18	v. s. sol. hot	soluble	soluble	30-1°	268-9°	finewhite nec.
19	s. soluble	soluble	soluble	-5.2°	205°	oily liquid...
20	0.25 <sup>100</sup>	∞	∞	16.5°	237.5° C.	leaflets. ....
21	.....	.....	.....	.....	280-90°	oil. ....
22	dec.	comb.	.....	.....	166° <sup>789</sup>	.....
23	v. s. sol.	v. soluble	v. soluble	235°	sub. 260°	prisms/al. ....
24	insol.	0.92	s. soluble	238°	351.5° C.	leaf. tablets ..
25	v. s. sol.	v. soluble	v. soluble	99°	296-7°	silky need. or yellow. [pris.
26	.....	.....	.....	.....	.....	.....
27	0.101/ <sup>20</sup>	∞	∞	-110°	46.2°	.....
28	.....	.....	.....	187°	185°	rhb. tab./al.
29	3.3 cc.	20 cc./ <sup>20</sup>	.....	-211°	-190°	.....
30	100 cc.	∞	∞	.....	0°12.5 at. 7°	.....
31	.....	.....	.....	.....	.....	.....
32	insol.	soluble	soluble	92.5°	189.5°	tablets. ....
33	0.080 <sup>20</sup>	v. soluble	v. soluble	-19.5°	76.74° C.	.....
34	v. v. s. sol.	∞	∞	.....	76-7°	.....
35	.....	.....	.....	.....	dec.	red regular ..
36	dec.	dec.	.....	.....	8.2° C.	.....
37	v. s. sol.	v. soluble	v. soluble	199-200°	sub.	large pris./al.
38	s. soluble	v. soluble	s. soluble	173-5°	.....	needles/w....

\* 0.059 CS<sub>2</sub>; 12.97 chloroform.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Carminic acid.....	$C_{17}H_{18}O_{10}$ .....	382.15	.....
2	Carnacrol.....	$(CH_3)_2CH.C_6H_5(CH_3).OH$	150.12	0.9856 <sup>16</sup>
3	Cellulose.....	$(C_6N_{10}O_5)_x$ .....	162.08	1.27-1.45
4	Cerotic acid.....	$C_{26}H_{52}O_2$ .....	396.42	0.8359 <sup>7</sup>
5	Ceryl alcohol.....	$C_{27}H_{56}OH$ .....	396.45	.....
6	Cetyl ".....	$C_{18}H_{38}OH$ .....	242.27	0.8176 <sup>7</sup>
7	Chlor-acetic acid.....	$ClCH_2.CO_2H$ .....	94.48	1.390 <sup>76</sup>
8	" " (K.).....	$ClCH_2.CO_2H$ .....	94.48	1.3978 <sup>44</sup>
9	acetone.....	$CH_3Cl.CO.CH_3$ .....	92.49	1.162 <sup>16</sup>
10	acetyl chloride.....	$CH_3Cl.COCl$ .....	112.92	1.495 <sup>9</sup>
11	acetylene.....	$CH:CCl$ .....	60.46	.....
12	allylene.....	$CH:C.CH_2Cl$ .....	74.48	1.0454 <sup>5</sup>
13	aniline (o.).....	$ClC_6H_4.NH_2$ .....	127.54	1.2338 <sup>9</sup>
14	" (m.).....	$ClC_6H_4.NH_2$ .....	127.54	1.2432 <sup>9</sup>
15	" (p.).....	$ClC_6H_4.NH_2$ .....	127.54	.....
16	benzamide (o.).....	$ClC_6H_4.CONH_2$ .....	155.54	.....
17	" (m.).....	$ClC_6H_4.CONH_2$ .....	155.54	.....
18	" (p.).....	$ClC_6H_4.CONH_2$ .....	155.54	.....
19	benzene.....	$C_6H_6$ .....	112.49	1.1181 <sup>10</sup>
20	" (K.).....	$C_6H_6Cl$ .....	112.49	1.104 <sup>44</sup>
21	benzoic acid (o.).....	$ClC_6H_4.CO_2H$ .....	156.49	.....
22	" " (m.).....	$ClC_6H_4.CO_2H$ .....	156.49	.....
23	" " (p.).....	$ClC_6H_4.CO_2H$ .....	156.49	.....
24	diphenyl (o.).....	$Cl.C_6H_4.C_6H_5$ .....	188.52	.....
25	" (m.).....	$Cl.C_6H_4.C_6H_5$ .....	188.52	.....
26	" (p.).....	$Cl.C_6H_4.C_6H_5$ .....	188.52	.....
27	ether.....	$CH_3.CHCl.O.C_2H_5$ .....	108.52	.....
28	ethyl alcohol (2).....	$CH_3Cl.CH_2OH$ .....	80.49	1.2233 <sup>9</sup>
29	Chlorhydrine.....	$CH_2Cl.CHOH.CH_2OH$ .....	110.50	1.1302 <sup>9</sup>
30	Chlor-methyl ether.....	$ClCH_2.O.CH_3$ .....	80.49	.....
31	malonic acid.....	$CHCl.(CO_2H)_2$ .....	138.48	.....
32	naphthaline (α).....	$C_{10}H_7Cl$ .....	162.51	1.2025 <sup>16</sup>
33	" (β).....	$C_{10}H_7Cl$ .....	162.51	1.2656 <sup>16</sup>
34	nitro-benzene (o.).....	$ClC_6H_4.NO_2$ .....	157.52	1.368 <sup>22</sup>
35	" (m.).....	$ClC_6H_4.NO_2$ .....	157.52	1.534
36	" (p.).....	$ClC_6H_4.NO_2$ .....	157.52	1.380 <sup>22</sup>
37	Chloral.....	$CCl_3.CHO$ .....	147.36	1.5121 <sup>7</sup>
38	hydrate.....	$CCl_3.CH(CH)_2$ .....	165.38	1.901
39	Chloroform.....	$CHCl_3$ .....	119.36	1.5264 <sup>4</sup>
40	Chlor-phenol (o.).....	$ClC_6H_4.OH$ .....	128.49	.....
41	" (m.).....	$ClC_6H_4.OH$ .....	128.49	.....

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	v. soluble	s. soluble	v. s. sol.	.....	.....	small moncl. prism /al.
2	.....	.....	.....	0°	236.5-7°	thick oil.....
3	insol.	insol.	insol.	.....	.....	amorphous ..
4	insol. ....	v. v. sol.	soluble *	82.5°	dec.	mic. need./al.
5	.....	soluble	.....	79°	.....	crystals .....
6	insol.	soluble	soluble	50°	344°	leaflets/al....
7	v. soluble	soluble	soluble	62.5-3.2°	185-7°	rhomb. tab. .
8	v. soluble	v. soluble	v. soluble	62-3°	185-7°	rhomb. tab. .
9	s. soluble	∞	∞	.....	119°	[or pris.
10	.....	.....	.....	.....	105-6°	.....
11	spon. comb.	.....	.....	.....	.....	.....
12	.....	.....	.....	.....	65°	.....
13	.....	.....	.....	< -14°	207°	.....
14	.....	.....	.....	.....	230° <sup>767</sup>	.....
15	.....	.....	.....	69.7°	230-1°	prisms .....
16	s. soluble	v. soluble	v. soluble	142.4°	.....	long need./w.
17	s. soluble	v. soluble	.....	132-3°	.....	needles .....
18	v. s. sol.	v. soluble	v. soluble	178.3°	.....	needles/et.
19	.....	soluble	.....	-44.9°	132°	.....
20	.....	.....	∞	-45°	131-2°	.....
21	0.11°	v. soluble	v. soluble	137°	.....	large needles.
22	0.04°	soluble	soluble	152°	sub.	small prisms.
23	0.02	v. soluble	v. soluble	236°	.....	scales .....
24	.....	sol. lig.	v. soluble	34°	267-8°	moncl. prisms
25	.....	.....	.....	89°	.....	.....
26	.....	.....	.....	75.5°	282°	pris. leaflets .
27	dec.	dec.	∞	.....	97-8°	.....
28	∞	∞	∞	.....	130-1°	.....
29	soluble	soluble	soluble	.....	127°	.....
30	dec.	.....	.....	.....	59.5°	.....
31	v. soluble	v. soluble	v. soluble	133°	.....	prisms .....
32	.....	soluble	.....	.....	263°	.....
33	.....	soluble	.....	56°	264-6° C. <sup>761</sup>	leaflets/al....
34	.....	soluble	.....	32.5°	243°	needles .....
35	v. sol. bz.	v. sol. hot	soluble	44.4°	235.6° C.	rhombic .....
36	.....	soluble	.....	83°	242°	rhombic leaf.
37	v. soluble	∞	∞	.....	97.7° C.	.....
38	v. soluble	v. soluble	sol. CS <sub>2</sub>	57°	97.5°	moncl. tab. .
39	0.822 <sup>20</sup>	v. soluble	v. soluble	-70°	61.2° C.	.....
40	.....	soluble	.....	7°	175-6°	.....
41	.....	soluble	.....	28.5°	214°	crystals .....

\* v. sol. acetone, bz., chlo., and CS<sub>2</sub>.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Chlor-phenol (p.) . . . . .	$\text{ClC}_6\text{H}_4\text{OH}$ . . . . .	128.49	1.306 <sup>20</sup>
2	propionic ac. (α) . . . . .	$\text{CH}_3\text{CHClCO}_2\text{H}$ . . . . .	108.49	1.28°
3	“ (β) . . . . .	$\text{CH}_2\text{ClCH}_2\text{CO}_2\text{H}$ . . . . .	108.49	1.28°
4	pyridine (2) . . . . .	$\text{C}_5\text{H}_4\text{ClN}$ . . . . .	113.52	1.135 <sup>21</sup>
5	“ (4) . . . . .	$\text{C}_5\text{H}_4\text{ClN}$ . . . . .	113.52	1.135 <sup>21</sup>
6	quinoline (py. 2) . . . . .	$\text{C}_8\text{H}_6\text{ClN}$ . . . . .	163.54	1.2754 <sup>17</sup>
7	“ (py. 4) . . . . .	$\text{C}_8\text{H}_6\text{ClN}$ . . . . .	163.54	1.3766 <sup>17</sup>
8	toluene (o.) . . . . .	$\text{ClC}_6\text{H}_4\text{CH}_3$ . . . . .	126.51	1.0807 <sup>22</sup>
9	“ “ (K.) . . . . .	$\text{ClC}_6\text{H}_4\text{CH}_3$ . . . . .	126.51	1.082 <sup>22</sup>
10	“ (m.) . . . . .	$\text{ClC}_6\text{H}_4\text{CH}_3$ . . . . .	126.51	1.0722 <sup>22</sup>
11	“ “ (K.) . . . . .	$\text{ClC}_6\text{H}_4\text{CH}_3$ . . . . .	126.51	1.074 <sup>22</sup>
12	“ (p.) . . . . .	$\text{ClC}_6\text{H}_4\text{CH}_3$ . . . . .	126.51	1.0697 <sup>22</sup>
13	“ “ (K.) . . . . .	$\text{ClC}_6\text{H}_4\text{CH}_3$ . . . . .	126.51	1.071 <sup>22</sup>
14	trinitro-benzene . . . . .	$\text{ClC}_6\text{H}_2(\text{NO}_2)_3$ . . . . .	247.48	1.790 <sup>23</sup>
15	Cholestrin . . . . .	$\text{C}_{26}\text{H}_{43}\text{OH} + \text{H}_2\text{O}$ . . . . .	390.37	1.067
16	Cholic acid . . . . .	$\text{C}_{24}\text{H}_{40}\text{O}_8 + \text{H}_2\text{O}$ . . . . .	426.34	1.185 <sup>24</sup>
17	Chrysaniline . . . . .	$\text{C}_{10}\text{H}_{15}\text{N}_3 + 2\text{H}_2\text{O}$ . . . . .	321.28	1.185 <sup>24</sup>
18	Chrysene . . . . .	$\text{C}_{18}\text{H}_{12}$ . . . . .	228.10	1.185 <sup>24</sup>
19	Chrysine . . . . .	$\text{C}_{18}\text{H}_{10}\text{O}_4$ . . . . .	254.08	1.185 <sup>24</sup>
20	Cincholic acid . . . . .	$\text{C}_7\text{H}_8\text{O}_8$ . . . . .	188.06	1.185 <sup>24</sup>
21	Cinchomeric acid . . . . .	$3,4\text{C}_6\text{H}_3\text{N}(\text{CO}_2\text{H})_2$ . . . . .	167.08	1.185 <sup>24</sup>
22	Cinnamic acid . . . . .	$\text{C}_6\text{H}_5\text{CH}:\text{CH}.\text{CO}_2\text{H}$ . . . . .	148.06	1.2475 <sup>4</sup>
23	Cinnamic aldehyde . . . . .	$\text{C}_6\text{H}_5\text{CH}:\text{CH}.\text{CHO}$ . . . . .	132.06	1.0497 <sup>25</sup>
24	“ “ (K.) . . . . .	$\text{C}_6\text{H}_5\text{CH}:\text{CH}.\text{CHO}$ . . . . .	132.06	1.048 <sup>25</sup>
25	“ anhydride . . . . .	$(\text{C}_6\text{H}_5\text{O})_2\text{O}$ . . . . .	278.12	1.185 <sup>24</sup>
26	Cinnamyl alcohol . . . . .	$\text{C}_6\text{H}_5\text{CH}:\text{CH}.\text{CH}_2\text{OH}$ . . . . .	134.08	1.0440 <sup>26</sup>
27	chloride . . . . .	$\text{C}_6\text{H}_7\text{OCl}$ . . . . .	166.51	1.185 <sup>24</sup>
28	Citraconic acid . . . . .	$\text{CH}_3\text{C}(\text{CO}_2\text{H}):\text{HC}.\text{CO}_2\text{H}$ . . . . .	130.05	1.617
29	anhydride . . . . .	$\text{C}_8\text{H}_4\text{O}_3$ . . . . .	112.03	1.250 <sup>15</sup>
30	Citral . . . . .	$\text{C}_9\text{H}_{16}\text{CHO}$ . . . . .	152.13	0.8972 <sup>15</sup>
31	Citramalic acid . . . . .	$\text{CO}_2\text{H}.\text{CH}_2\text{C}(\text{OH})(\text{CH}_3)\text{CO}_2\text{H}$ . . . . .	148.06	1.185 <sup>24</sup>
32	Citric acid . . . . .	$(\text{CO}_2\text{H}.\text{CH}_2)_2\text{C}(\text{OH})\text{CO}_2\text{H} + \text{H}_2\text{O}$ . . . . .	192.06	1.542
33	Collidine (α) . . . . .	$\text{CH}_3.\text{C}_6\text{H}_3\text{N}.\text{C}_2\text{H}_5$ . . . . .	121.13	0.9268 <sup>18</sup>
34	“ (β) . . . . .	$\text{CH}.\text{C}_6\text{H}_3\text{N}.\text{C}_2\text{H}_5$ . . . . .	121.13	0.9656°
35	“ (γ) . . . . .	$(\text{CH}_3)_3\text{C}_6\text{H}_2\text{N}$ . . . . .	121.13	0.917 <sup>18</sup>



Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	v. s. sol.	v. soluble	v. soluble	37°	217°	crystals . . . .
2	∞	∞	∞	.....	186°	.....
3	v. soluble	v. soluble	∞	41.5°	203-5°	leaflets . . . .
4	v. s. sol.	.....	.....	.....	148° <sup>0743</sup>	.....
5	mod. sol.	.....	.....	.....	147-8°	.....
6	v. v. s. sol.	v. v. sol.	v. v. sol.	37-8°	275° <sup>0781</sup>	need./dil. al..
7	sol. HCl	v. v. sol.	v. v. sol.	34°	260-1° <sup>0744</sup>	.....
8	insol.	.....	.....	-34.0°	155°	.....
9	s. soluble	soluble	∞	-34°	158-9.5°	.....
10	.....	.....	.....	-47.8°	162° <sup>0756</sup>	.....
11	s. soluble	soluble	∞	-47°	160.5-2.5	.....
12	insol.	.....	.....	7.4°	162.3° <sup>0756</sup>	.....
13	s. soluble	soluble	∞	6.5-7.5°	160.5-2.5°	moncl. tab./e.
14	insol.	v. sol. hot	s. soluble	83°	.....	.....
15	insol.	11 <sup>78</sup>	18	148.5° C.	360° in vac.	need. or mon- oclinic tab.
16	0.025	4.8 <sup>7007</sup> %	0.2 <sup>18</sup>	195°	dec. 160°	trimetric . . .
17	v. v. s. sol.	s. soluble	.....	267-70°	dist.	yel. need. . . .
18	s. soluble	0.097 <sup>16</sup>	v. s. sol.	250°	subl.	scales or rhb.
19	v. v. s. sol.	2.0 <sup>78</sup> *	.....	275°	subl. need	yellow tab. . .
20	v. sol. hot	soluble	s. soluble	168-9°	.....	moncl. tab./w.
21	v. s. sol.	s. soluble	v. v. s. sol.	258-9°	.....	prisms HCl. .
22	0.1 <sup>20</sup>	21 <sup>20</sup>	v. soluble	133°	300°	moncl. prisms
23	.....	soluble	.....	-7.5°	220-5° dec.	.....
24	.....	soluble	∞	-8°	{ 248-50° dec.	{ colorless to brownish
25	insol.	v. s. sol.	.....	130-5°	.....	crystals . . . .
26	mod. sol.	v. soluble	v. soluble	33°	254° <sup>0747</sup>	long needles .
27	.....	.....	.....	35-6°	170° <sup>058</sup>	crystals . . . .
28	245 <sup>16</sup>	.....	.....	80°	dec.	moncl. prisms
29	insol.	.....	.....	7°	213-4° C.	.....
30	insol.	.....	.....	.....	228-9°	oil. . . . .
31	deliq.	v. soluble	v. soluble	119°	dec. 200°	prisms . . . .
32	133	75.9	2.26	153°	dec.	rhomb. pris. .
33	sol. less sol. hot	v. soluble	v. soluble	.....	179-80°	.....
34	insol. [hot	soluble	.....	.....	195-6° <sup>0753</sup>	.....
35	sol.; insol.	.....	.....	.....	171-2°	.....

\* Very slightly soluble benzene, CS<sub>2</sub>, chloroform, and ligroin.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
	<b>Collidine</b>			
1	dicarbonic acid	$(\text{CH}_2)_3\text{C}_5\text{N}(\text{CO}_2\text{H})_2$	209.13	
2	<b>Coniferine</b>	$\text{C}_{16}\text{H}_{22}\text{O}_3 + 2\text{H}_2\text{O}$	378.21	
3	<b>Coniine</b> (d.)	$2, \text{C}_8\text{H}_8\text{N.C}_2\text{H}_7$	127.18	0.846 <sup>13</sup>
4	<b>Coumaric acid</b> (o.)	$\text{OHC}_6\text{H}_4\text{CH:CH.CO}_2\text{H}$	164.06	
5	“ “ (p.)	$\text{OHC}_6\text{H}_4\text{CH:CH.CO}_2\text{H}$	164.06	
6	<b>Coumarin</b>	$\text{C}_9\text{H}_6\text{O}_2$	146.05	
7	<b>Coumaron</b>	$\text{C}_8\text{H}_6\text{O}$	118.05	1. +
8	<b>Creatine</b>	$\text{C}_4\text{H}_7\text{N}_3\text{O}_2 + \text{H}_2\text{O}$	149.21	
9	<b>Creatinine</b>	$\text{C}_4\text{H}_7\text{N}_3\text{O}$	113.18	
10	<b>Creosole</b>	$\text{CH}_3\text{OC}_6\text{H}_3(\text{CH}_2)\text{OH}$	138.08	1.1112 <sup>9</sup>
11	<b>Cresole</b> (o.)	$\text{CH}_3\text{C}_6\text{H}_4\text{OH}$	108.06	1.0053 <sup>98</sup>
12	“ (m.)	$\text{CH}_3\text{C}_6\text{H}_4\text{OH}$	108.06	1.0498 <sup>9</sup>
13	“ (p.)	$\text{CH}_3\text{C}_6\text{H}_4\text{OH}$	108.06	0.9962 <sup>98</sup>
14	<b>Croconic acid</b>	$\text{CO:C:}(\text{CO}_2\text{H})_2 + 3\text{H}_2\text{O}$	184.07	
15	<b>Crotonic acid</b> (α)	$\text{CH}_3\text{HC:CH.CO}_2\text{H}$	86.05	1.018
16	“ “ (β)	$\text{HCH}_2\text{C:CH.CO}_2\text{H}$	86.05	1.0312 <sup>9</sup>
17	“ aldehyde (α)	$\text{CH}_3\text{HC:CH.CHO}$	70.05	1.033 <sup>9</sup>
18	<b>Crotonyl ether</b>	$(\text{CH}_3\text{CH:CH.CH}_2)_2\text{O}$	126.12	0.8895 <sup>9</sup>
19	alcohol	$\text{CH}_3\text{CH:CH.CH}_2\text{OH}$	72.06	0.873 <sup>9</sup>
20	<b>Cumene</b>	$\text{C}_6\text{H}_5\text{CH}(\text{CH}_3)_2$	120.10	0.8587 <sup>25</sup>
21	<b>Cuminic acid</b>	$(\text{CH}_3)_2\text{CH.C}_6\text{H}_4\text{CO}_2\text{H}$	164.10	1.1625 <sup>4</sup>
22	aldehyde	$(\text{CH}_3)\text{CHC}_6\text{H}_4\text{CHO}$	148.10	0.9727 <sup>13</sup>
23	<b>Cyan-acetic acid</b>	$\text{CNCH}_2\text{CO}_2\text{H}$	85.07	
24	amide	$\text{CN.NH}_2$	42.10	
25	anilid	$\text{CNNHC}_6\text{H}_5 + \frac{1}{2}\text{H}_2\text{O}$	127.14	
26	aniline	$(\text{C}_6\text{H}_5\text{NH}_2)_2(\text{CN})_2$	238.28	
27	<b>Cyanic acid</b>	$\text{CONH}$	43.05	1.140 <sup>9</sup>
28	<b>Cyanoform</b>	$\text{HC}(\text{CN})_3$	91.13	
29	<b>Cyanogen</b>	$(\text{CN})_2$	52.08	1.804(A); 0.866 <sup>17</sup>
30	bromide	$\text{CNBr}$	106.00	
31	chloride	$\text{CNCl}$	61.49	1. +
32	iodide	$\text{CNI}$	153.01	
33	sulphide	$(\text{CN})_2\text{S}$	84.14	
34	<b>Cyan-propionic acid</b> (α)	$\text{CH}_3\text{CHCN.CO}_2\text{H} + \frac{1}{2}\text{H}_2\text{O}$	126.11	
35	<b>Cyanuric acid</b>	$\text{C}_3\text{N}_3\text{H}_3\text{O}_3 + 2\text{H}_2\text{O}$	165.19	1.768 <sup>9</sup>
36	<b>Cyclo-heptadiene</b>	$\text{C}_7\text{H}_{10}$	94.08	0.8938
37	hexanol	$(\text{CH}_2)_5\text{:CHOH}$	100.10	

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	v. s. sol.	v. s. sol.	v. s. sol.	no m.p.	.....	fine need./w..
2	0.51	soluble	insol.	185°	dec.	glit. needles .
3	1.1	∞	v. soluble	-2.5°	170°	.....
4	s. soluble	v. soluble	v. s. sol.	207-8°	dec.	long. needles .
5	v. s. sol.	v. soluble	v. soluble	206°	.....	silky need./w.
6	v. s. sol.	v. soluble	soluble	6.7°	290-0.5°	rhombic/et. .
7	insol.	.....	.....	< -18°	171-2 C. <sup>752</sup>	.....
8	1.35 <sup>18</sup>	0.008	insol.	dec.	.....	moncl. prisms
9	8.7 <sup>18</sup>	0.98 <sup>18</sup>	.....	dec.	.....	moncl. prisms
10	s. soluble	∞	∞; ∞ bz.	.....	221-2°	oil. ....
11	s. soluble	soluble	soluble	30°	190.8°	crystals. ....
12	s. soluble	soluble	soluble	3-4°	202.8°	.....
13	s. soluble	soluble	soluble	36°	201.8°	prisms. ....
14	v. soluble	soluble	.....	.....	.....	yel. needles. .
15	8.3	.....	.....	72°	185° C.	moncl. prisms
16	40	.....	.....	< -15°	169-9.3°	oil. ....
17	mod. sol.	.....	.....	.....	104-5°	.....
18	.....	.....	.....	.....	143.5°	.....
19	.....	.....	.....	.....	117°	.....
20	insol.	soluble	soluble	.....	152.5-3°	.... [tab./al.
21	v. s. sol.	soluble	v. soluble	116.5°	subl.	triclin. pris. or
22	.....	.....	.....	.....	235°	.....
23	soluble	.....	soluble	55° or 65°	dec.	crystals. ....
24	v. v. sol.	v. soluble	v. soluble	40°	.....	crystals. ....
25	s. soluble	v. v. sol.	v. v. sol.	47°	.....	leaflets. ....
26	insol.	s. soluble	s. soluble	210-20°	dec.	leaflets. ....
27	soluble	.....	.....	.....	.....	.....
28	soluble	s. soluble	.....	183° dec.	.....	crystals. ....
29	450 cc.	.....	.....	-34.4°	-20.7°	.....
30	.....	.....	.....	52°	61.3 <sup>750</sup>	needles. ....
31	2500 cc.	10,000 cc.	5000 cc.	-5°	15.5°	.....
32	soluble	soluble	soluble	146.5°	.....	long needles .
33	v. soluble	soluble	v. soluble *	60°	sub. 30°+	{ rhomb. tab. or leaf.
34	v. soluble	v. soluble	.....	140° dec.	.....	amorphous ..
35	0.17 <sup>18</sup>	0.349	.....	.....	.....	monoclinic ..
36	.....	.....	.....	120-1°	.....	.....
37	3.56	.....	.....	16-7°	160-1° C.	needles. ....

\* Very soluble carbon disulphide; mod. sol. chlo. and bz.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Cyclo-hexanone . . . . .	$(\text{CH}_2)_5 : \text{CO}$ . . . . .	98.08	0.9473 <sup>19</sup>
2	pentadiene . . . . .	$\text{CH}_2 : (\text{CH} : \text{CH})_2$ . . . . .	66.05	0.8047 <sup>9</sup>
3	pentene . . . . .	$(\text{CH}_2)_5$ . . . . .	68.06	0.8525 <sup>25</sup>
4	Cymene (o.) . . . . .	$\text{CH}_3 \cdot \text{C}_6\text{H}_4 \cdot \text{CH}_2 \cdot \text{CH}_2 \cdot \text{CH}_3$ . . . . .	134.12	0.863 <sup>16</sup>
5	" (m.) . . . . .	$\text{CH}_3 \cdot \text{C}_6\text{H}_4 \cdot \text{CH}_2 \cdot \text{CH}_2 \cdot \text{CH}_3$ . . . . .	134.12	0.8525 <sup>25</sup>
6	" (p.) . . . . .	$\text{CH}_3 \cdot \text{C}_6\text{H}_4 \cdot \text{CH} : (\text{CH}_2)_2$ . . . . .	134.12	0.853 <sup>16</sup>
7	" " (K.) . . . . .	$\text{CH}_3 \cdot \text{C}_6\text{H}_4 \cdot \text{CH} : (\text{CH}_3)_2$ . . . . .	134.12	1.752
8	Dambosc . . . . .	$\text{C}_6\text{H}_5(\text{OH})_6$ . . . . .	180.10	0.837 <sup>9</sup>
9	Deca-hydro-naphthaline . . . . .	$\text{C}_{10}\text{H}_{18}$ . . . . .	138.15	0.730 <sup>20</sup>
10	Decane (n.) . . . . .	$\text{CH}_3(\text{CH}_2)_8\text{CH}_3$ . . . . .	142.18	0.8297 <sup>9</sup>
11	Decyl alcohol . . . . .	$\text{CH}_3(\text{CH}_2)_8\text{CH}_2\text{OH}$ . . . . .	140.16	$\text{CO}_2\text{H} \cdot \text{CH}(\text{OH}) \cdot \text{C}(\text{OH}) \cdot (\text{CO}_2\text{H})_2$ . . . . .
12	Decylene (n.) . . . . .	$\text{CH}_3(\text{CH}_2)_7\text{CH} : \text{CH}_3$ . . . . .	194.05	324.16
13	Desoxalic acid . . . . .	$\text{CO}_2\text{H} \cdot \text{CH}(\text{OH}) \cdot \text{C}(\text{OH}) \cdot (\text{CO}_2\text{H})_2$ . . . . .	176.10	1.0384
14	Dextrin . . . . .	$\text{C}_{12}\text{H}_{20}\text{O}_{10}$ . . . . .	86.05	0.9734 <sup>22</sup>
15	Diacetin . . . . .	$(\text{C}_2\text{H}_3\text{O}_2)_2 \cdot \text{C}_3\text{H}_5\text{OH}$ . . . . .	50.02	156.04
16	Diacetyl . . . . .	$\text{CH}_3\text{CO} \cdot \text{CO} \cdot \text{CH}_3$ . . . . .	82.08	0.6905 <sup>21</sup>
17	Diacetylene . . . . .	$\text{CH} : \text{C} : \text{C} : \text{CH}$ . . . . .	112.10	0.08752 <sup>9</sup>
18	dicarbonic acid . . . . .	$(\text{C} : \text{C} \cdot \text{CO}_2\text{H})_2 + \text{H}_2\text{O}$ . . . . .	80.06	0.8579 <sup>18</sup>
19	Di-allyl . . . . .	$(\text{CH}_2 : \text{CH} \cdot \text{CH}_2)_2$ . . . . .	274.23	197.21
20	carbinol . . . . .	$(\text{C}_6\text{H}_5)_2\text{CHOH}$ . . . . .	140.57	167.16
21	Diallylene . . . . .	$\text{C}_3\text{H}_5 \cdot \text{CH}_2 \cdot \text{C} : \text{CH}$ . . . . .	184.17	184.17
22	Diamino-triphenyl methane (pp.) . . . . .	$\text{C}_6\text{H}_5\text{CH}(\text{C}_6\text{H}_4\text{NH}_2)_2$ . . . . .	184.17	42.08
23	Diazo-amino-benzene . . . . .	$\text{C}_6\text{H}_5 \cdot \text{N} \cdot \text{NH} \cdot \text{N} \cdot \text{C}_6\text{H}_5$ . . . . .	192.17	192.17
24	benzene chloride . . . . .	$\text{C}_6\text{H}_5 \cdot \text{N}_2\text{Cl}$ . . . . .	182.12	1.0423 <sup>22</sup>
25	" nitrate . . . . .	$\text{C}_6\text{H}_5 \cdot \text{N}_2\text{NO}_3$ . . . . .	197.16	1.033 <sup>14</sup>
26	" sulphonic acid (o.) . . . . .	$\text{C}_6\text{H}_4 : \text{N}_2\text{SO}_3$ . . . . .	217.94	335.98
27	" " " (m.) . . . . .	$\text{C}_6\text{H}_4 : \text{N}_2\text{SO}_3$ . . . . .	235.95	1.977 <sup>18</sup>
28	" " " (p.) . . . . .	$\text{C}_6\text{H}_4 : \text{N}_2\text{SO}_3$ . . . . .	235.95	1.955 <sup>19</sup>
29	methane . . . . .	$\text{CH}_2 : \text{N}_2$ . . . . .	235.95	2.220
30	phenol (p.) . . . . .	$\text{C}_6\text{H}_4\text{N}_2\text{O} + 4\text{H}_2\text{O}$ . . . . .	174.15	0.9244 <sup>20</sup>
31	Dibenzyl . . . . .	$\text{C}_6\text{H}_5 \cdot \text{CH}_2 \cdot \text{CH}_2 \cdot \text{C}_6\text{H}_5$ . . . . .		
32	amine . . . . .	$\text{NH}(\text{CH}_2\text{C}_6\text{H}_5)_2$ . . . . .		
33	Dibrom-acetic acid . . . . .	$\text{CHBr}_2 \cdot \text{CO}_2\text{H}$ . . . . .		
34	anthracene . . . . .	$\text{C}_6\text{H}_4 \cdot \text{C}_2\text{Br}_2 \cdot \text{C}_6\text{H}_4$ . . . . .		
35	benzene (o.) . . . . .	$\text{C}_6\text{H}_4\text{Br}_2$ . . . . .		
36	" (m.) . . . . .	$\text{C}_6\text{H}_4\text{Br}_2$ . . . . .		
37	" (p.) . . . . .	$\text{C}_6\text{H}_4\text{Br}_2$ . . . . .		
38	Di-butyl carbonate . . . . .	$(\text{C}_4\text{H}_9)_2\text{CO}_3$ . . . . .		

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	v. soluble			-45°	155°	
2		∞			42.5°	
3					45°	oil.
4	insol.	soluble			181-2°	
5	insol.	soluble			176-7.5°	
6	insol.	v. soluble	soluble		175°	
7	insol.	s. soluble	soluble	-73.5°	174-6°	
8	s. soluble	ins. abs.		225° C.	319° in vac.	monoclinic/w
9					173-80°	
10				-30-32°	173° C.	
11		soluble		7°	231° C.	thick liquid.
12					172°	
13	v. soluble	v. soluble			dec.	cryst. mass.
14	v. soluble	insol.				amorphous
15	∞	insol. CS <sub>2</sub>	∞	40°	259-61°	
16	25 <sup>15</sup>				87.5-8°	yellow.
17						
18	mod. sol.	v. soluble	v. soluble	177° exp.		tab./al. + et.
19	insol.				59.5° C.	
20	v. v. s. sol.				151° C.	
21					70°	
22	v. v. s. sol.	v. soluble	v. soluble	139°		warts.
23	insol.	soluble	v. soluble	96°	exp.	yellow leaf/al.
24	v. soluble	soluble	insol.	dec.		needles
25	v. v. sol.	soluble	insol.	exp.		needles
26						cryst. mass.
27	v. soluble			exp.		red y. pris./w.
28	v. sol. <sup>60</sup>	insol.				sm. need./w.
29			soluble	exp. 200°	0°	yellow
30	v. soluble	v. soluble	s. soluble	38-9° exp.		yellow need.
31		mod. sol.	v. soluble	52°	284°	monoclinic...
32	insol.	v. soluble	v. soluble		300°	
33	v. soluble	v. soluble	v. soluble	48°	232-4°	crystals
34	sol. hot bz.	s. soluble	s. soluble	221°	subl.	yel. need./tol.
35		soluble		-1°	223.8 <sup>0753</sup>	
36		soluble	soluble	1-2°	219.4 <sup>758</sup>	
37		soluble		89.3° C.	219°	moncl. pris.
38					207.7° C.	

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Di-butyl oxalate.....	$(C_4H_9)_2C_2O_4$ .....	202.15	1.010 <sup>0</sup>
2	Dichlor-acetamide.....	$CHCl_2.CONH_2$ .....	127.97	
3	acetic acid.....	$CHCl_2.CO_2H$ .....	128.92	1.5216 <sup>18</sup>
4	acetone.....	$CHCl_2.CO.CH_3$ .....	126.93	1.236 <sup>21</sup>
5	acetyl chloride.....	$CHCl_2.COCl$ .....	147.36	
6	aldehyde.....	$CHCl_2.CHO$ .....	112.92	
7	anthracene ( $\beta$ ).....	$C_{14}H_{10}Cl_2$ .....	246.96	
8	aniline (2, 4).....	$NH_2C_6H_4Cl_2$ .....	161.98	
9	" (2, 5).....	$NH_2C_6H_4Cl_2$ .....	161.98	
10	" (3, 4).....	$NH_2C_6H_4Cl_2$ .....	161.98	
11	" (3, 5).....	$NH_2C_6H_4Cl_2$ .....	161.98	
12	benzene (o.).....	$C_6H_4Cl_2$ .....	146.93	1.3254 <sup>0</sup>
13	" (m.).....	$C_6H_4Cl_2$ .....	146.93	1.307 <sup>0</sup>
14	" (p.).....	$C_6H_4Cl_2$ .....	146.93	1.4581 <sup>20</sup>
15	benzoic acid (2, 5).....	$Cl_2C_6H_3.CO_2H$ .....	190.93	
16	" " (2, 6).....	$Cl_2C_6H_3.CO_2H$ .....	190.93	
17	" " (3, 4).....	$Cl_2C_6H_3.CO_2H$ .....	190.93	
18	ether.....	$CH_2Cl.CHCl.O.C_2H_5$ .....	142.96	1.174 <sup>23</sup>
19	hydriue (1, 3).....	$CH_2Cl.CHOH.CH_2Cl$ .....	128.95	1.367 <sup>19</sup>
20	" (2, 3).....	$CH_2Cl.CHCl.CH_2OH$ .....	128.95	1.355 <sup>17, 8</sup>
21	propane (2, 2).....	$CH_2.CCl_2.CH_3$ .....	112.95	1.827 <sup>16</sup>
22	stilbene.....	$C_{14}H_{10}Cl_2$ .....	248.98	
23	Diethyl-acetic acid.....	$(C_2H_5)_2HC.CO_2H$ .....	116.10	0.9196 <sup>9</sup>
24	amine.....	$(C_2H_5)_2NH$ .....	73.13	0.7226 <sup>4</sup>
25	" (K.).....	$(C_2H_5)_2NH$ .....	73.13	0.7028 <sup>11</sup>
26	aniline.....	$(C_2H_5)_2NCH_3$ .....	149.16	0.939 <sup>18</sup>
27	" (K.).....	$(C_2H_5)_2NC_6H_5$ .....	149.16	0.993 <sup>11</sup>
28	benzene (o.).....	$C_6H_4(C_2H_5)_2$ .....	134.12	0.8662 <sup>9</sup>
29	" (m.).....	$C_6H_4(C_2H_5)_2$ .....	134.12	0.8602 <sup>9</sup>
30	" (p.).....	$C_6H_4(C_2H_5)_2$ .....	134.12	0.8622 <sup>9</sup>
31	carbinol.....	$(C_2H_5)_2CHOH$ .....	88.10	0.8312 <sup>0</sup>
32	fumarate.....	$(C_2H_5)_2C_2H_2O_4$ .....	172.10	1.063 <sup>10</sup>
33	glutaconate.....	$(C_2H_5)_2C_2H_4O_4$ .....	186.12	
34	isosuccinate.....	$(C_2H_5)_2C_2H_4O_4$ .....	174.12	1.0213 <sup>15</sup>
35	itaconate.....	$(C_2H_5)_2C_2H_4O_4$ .....	186.12	1.0504 <sup>15</sup>
36	ketone.....	$C_2H_5.CO.C_6H_5$ .....	86.08	0.8335 <sup>4</sup>
37	" (K.).....	$C_2H_5.CO.C_2H_5$ .....	86.08	0.8140 <sup>11</sup>
38	maleate.....	$(C_2H_5)_2C_2H_2O_4$ .....	172.10	1.0740 <sup>15</sup>
39	malonic acid.....	$(C_2H_5)_2C.(CO_2H)_2$ .....	160.10	
40	mesaconate.....	$(C_2H_5)_2C_2H_4O_4$ .....	186.12	1.0492 <sup>15</sup>

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1					243.4° C.	
2	v. sol. hot	v. soluble	v. soluble	98°	233-4° <sup>0745</sup>	moncl. prisms
3	soluble	soluble	soluble	-4°	189-91°	
4	soluble				120°	
5					107-8°	
6	insol.				88-90°	
7	sol. bz.	s. soluble	s. soluble	209°		yel. needles.
8		soluble		63°	245° C.	need./dil. al.
9		soluble		50°	251°	needles/lig.
10	s. sol. lig.	soluble		71.5°	272°	needles/lig.
11		soluble		50.5°	259-60°	needles.
12		soluble		< -14°	179°	
13		soluble		-18°	172° <sup>0787</sup>	
14	v. sol. bz.	∞	v. soluble	53°	172°	mon.leaf./al.
15	0.09 <sup>11</sup>	soluble		156°	301°	needles/w.
16				126.5°		sm. needles.
17	v. s. sol.	v. s. sol.		201-2°	dist.	fine need./w.
18			∞		140-5°	
19	1.1 <sup>19</sup>				182°	
20					182°	
21					69.7°	[leaflets
22		v. sol. hot	v. soluble	170°		silks. need. or
23	s. soluble			< -15°	190° <sup>0758</sup>	
24	v. soluble	soluble		-40°	55.5°	
25	soluble	soluble	soluble	-40°	55-7°	
26	insol.	soluble	soluble		213.5°	oil.
27	insol.	soluble	∞	-38-9°	215.0-6.5	usually yel.
28				< -20°	184-4.5°	
29				< -20°	181-2°	
30	insol.	soluble	soluble	< -20°	182-3°	
31					116.5° <sup>0758</sup>	
32					218.5° C.	
33					236-8°	
34					198.5-9.5	
35					227.8° C.	
36					101.08°	
37	4.1	∞	∞		101-2°	
38	4.1				223.03° C.	
39	65 <sup>18</sup>	v. soluble	v. soluble	121-5°		prisms.
40					229° C.	

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Diethyl-mesoxalate . . . . .	$(\text{OH})_2\text{C}(\text{CO}_2\text{C}_2\text{H}_5)_2$ . . . . .	192.10	.....
2	phosphine . . . . .	$(\text{C}_2\text{H}_5)_3\text{PH}$ . . . . .	90.09	< 1
3	sulphite . . . . .	$(\text{C}_2\text{H}_5)_2\text{SO}_3$ . . . . .	138.14	1.1063°
4	toluene (s.) . . . . .	$(\text{C}_2\text{H}_5)_2\text{C}_6\text{H}_4\text{CH}_3$ . . . . .	148.13	0.879 <sup>30</sup>
5	urea . . . . .	$\text{CO}(\text{NHC}_2\text{H}_5)_2$ . . . . .	116.18	1.0415
6	" (uns.) . . . . .	$\text{NH}_2\text{CO.N}(\text{C}_2\text{H}_5)_2$ . . . . .	116.18	.....
7	Diethylene glycol . . . . .	$(\text{CH}_2\text{OH.CH}_2)_2\text{O}$ . . . . .	106.08	1.132°
8	Diffuor benzene (p.) . . . . .	$\text{C}_6\text{H}_4\text{F}_2$ . . . . .	114.03	1.11
9	Diglycerine . . . . .	$\text{C}_6\text{H}_{14}\text{O}_6$ . . . . .	166.12	.....
10	Diglycolic acid . . . . .	$(\text{CO}_2\text{H.CH}_2)_2\text{O} + \text{H}_2\text{O}$ . . . . .	152.07	.....
11	Diguanid . . . . .	$\text{NH:C}(\text{NH}_2)\text{NHC}$ $(\text{NH}_2):\text{NH}$ . . . . .	101.26	.....
12	Dihydro-anthracene . . . . .	$\text{C}_6\text{H}_4:(\text{CH}_2)_2:\text{C}_6\text{H}_4$ . . . . .	180.10	.....
13	benzaldehyde ( $\Delta$ 4, 6) . . . . .	$\text{C}_7\text{H}_5\text{O}$ . . . . .	108.06	1.0327°
14	benzene (1, 2) . . . . .	$\text{C}_6\text{H}_6$ . . . . .	80.06	.....
15	naphthaline . . . . .	$\text{C}_{10}\text{H}_8$ . . . . .	130.08	.....
16	phthalic acid ( $\Delta$ 2, 4) . . . . .	$\text{o.C}_6\text{H}_4(\text{CO}_2\text{H})_2$ . . . . .	168.06	.....
17	quinoline . . . . .	$\text{C}_8\text{H}_7\text{N}$ . . . . .	131.11	.....
18	resorcine . . . . .	$\text{C}_6\text{H}_4\text{O}_2$ . . . . .	112.06	.....
19	terephthalic ac. ( $\Delta$ 2, 6) . . . . .	$\text{C}_6\text{H}_4(\text{CO}_2\text{H})_2$ . . . . .	168.06	.....
20	toluene . . . . .	$\text{CH}_3.\text{C}_6\text{H}_5$ . . . . .	94.08	.....
21	-xylene (o.) . . . . .	$(\text{CH}_3)_2\text{C}_6\text{H}_4$ . . . . .	108.10	.....
22	" (m.) . . . . .	$(\text{CH}_3)_2\text{C}_6\text{H}_4$ . . . . .	108.10	0.8275 <sup>30</sup>
23	" (p.) . . . . .	$(\text{CH}_3)_2\text{C}_6\text{H}_4$ . . . . .	108.10	.....
24	Dihydroxy-benzoic acid (2, 3) . . . . .	$(\text{OH})_2\text{C}_6\text{H}_3\text{CO}_2\text{H} + 2\text{H}_2\text{O}$ . . . . .	190.08	.....
25	benzoic acid (2, 4) . . . . .	$(\text{OH})_2\text{C}_6\text{H}_3\text{CO}_2\text{H} + 3\text{H}_2\text{O}$ . . . . .	208.10	.....
26	" " (2, 5) . . . . .	$(\text{OH})_2\text{C}_6\text{H}_3\text{CO}_2\text{H}$ . . . . .	154.05	.....
27	" " (3, 5) . . . . .	$(\text{OH})_2\text{C}_6\text{H}_3\text{CO}_2\text{H} + 1\frac{1}{2}\text{H}_2\text{O}$ . . . . .	181.08	.....
28	benzophenone (2, 4) . . . . .	$\text{C}_6\text{H}_4(\text{OH})_2\text{CO}$ . . . . .	214.08	.....
29	" (3, 3') . . . . .	$\text{C}_6\text{H}_4(\text{OH})_2\text{CO}$ . . . . .	214.08	.....
30	" (4, 4') . . . . .	$\text{C}_6\text{H}_4(\text{OH})_2\text{CO}$ . . . . .	214.08	.....
31	butane (2, 3) . . . . .	$\text{CH}_3.\text{CHOH}.\text{CHOH}.\text{CH}_3$ . . . . .	90.08	.....
32	naphthaline (1, 6) . . . . .	$(\text{OH})_2\text{C}_{10}\text{H}_6$ . . . . .	160.06	.....
33	" (1, 7) . . . . .	$(\text{OH})_2\text{C}_{10}\text{H}_6$ . . . . .	160.06	.....
34	" (1, 8) . . . . .	$(\text{OH})_2\text{C}_{10}\text{H}_6$ . . . . .	160.06	.....
35	" (2, 3) . . . . .	$(\text{OH})_2\text{C}_{10}\text{H}_6$ . . . . .	160.06	.....
36	" (2, 7) . . . . .	$(\text{OH})_2\text{C}_{10}\text{H}_6$ . . . . .	160.06	.....
37	pyridine . . . . .	$\text{C}_5\text{H}_5\text{N}(\text{OH})_2 + \frac{1}{2}\text{H}_2\text{O}$ . . . . .	120.09	.....
38	quinone (2, 5) . . . . .	$\text{C}_6\text{H}_2\text{O}_2(\text{OH})_2$ . . . . .	140.03	.....

\* Very soluble benzene and ligroin.

† V. sol. chlo., acetone, and hot benz.; v. s. sol. CS<sub>2</sub> and lig.



Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	insol.	.....	.....	57°	abt. 200°	.....
2	.....	.....	.....	.....	85°	.....
3	.....	soluble	soluble	.....	161.3°	.....
4	.....	.....	.....	.....	199-200°	.....
5	v. soluble	v. soluble	v. soluble *	112.5°	263°	prisms. ....
6	deliq.	v. soluble	v. soluble	70°	.....	prisms. ....
7	soluble	soluble	soluble	.....	25.0°	.....
8	.....	.....	.....	.....	87-9°	.....
9	s. soluble	.....	insoluble	.....	220-30° <sup>10</sup>	thick liquid..
10	v. soluble	v. soluble	soluble	148°	decomp.	rhomb. pris. .
11	.....	.....	.....	.....	.....	amorphous ..
12	.....	v. soluble	v. soluble	108.5°	313°	moncl. tab... .
13	.....	.....	.....	< -20°	170-1° dec.	oil. ....
14	.....	.....	.....	.....	82°-85°	oil. ....
15	.....	.....	.....	15.5°	212°	.....
16	soluble	soluble	s. soluble	21.5°	.....	moncl. tab... .
17	.....	.....	.....	220-6°	.....	yellow. ....
18	v. soluble	v. soluble	v. s. sol.†	104-6 sl.dec	.....	prisms/bz. . .
19	0.2° <sup>10</sup>	.....	.....	215°	.....	triclinic. ....
20	.....	.....	.....	.....	105-8°	.....
21	.....	.....	soluble	.....	134-5°	.....
22	.....	.....	.....	.....	132-4°	.....
23	.....	.....	.....	.....	134-5°	.....
24	soluble	.....	.....	204°	decomp.	needles
25	0.263° <sup>17</sup>	v. soluble	v. soluble	204-6° dec.	decomp.	needles/eth. .
26	sol. hot.	v. soluble	v. soluble	199-200°	decomp.	need. or pris..
27	mod. sol.	v. soluble	v. soluble	232-3°	.....	pris. or need. .
28	s. sol. hot	sol. alk.	v.sol.sol.bz.	143-4°	.....	pyramid/bz..
29	soluble	soluble	sol. alk.	162-3°	.....	small needles
30	v. sol. hot	v. soluble	v. soluble ‡	210°	dist. undec.	yel. need./lig.
31	.....	.....	.....	.....	183-4°	.....
32	v. sol. bz.	s. soluble	v. soluble	134-5°	.....	short pris./bz.
33	mod. sol.	v. soluble	v. soluble	178°	.....	sm. need./bz.
34	v. sol. bz.	.....	v. soluble	140°	.....	need. or leaf..
35	sol. hot	v. soluble	v. soluble	159°	.....	rhombic/al... .
36	sol. hot	v. soluble	v. sol.	130°	subl. pt. de.	long needles..
37	soluble	mod. sol.	s. sol. CS <sub>2</sub>	.....	.....	.....
38	v. v. s. sol.	v. soluble	v. s. sol.	225° no m.p.	..... sublimes	yel. need./w.. yel. needles. .

‡ V. sol. acetone and alkalis; v. s. sol. bz., chlo. and CS<sub>2</sub>.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
	<b>Dihydroxy-</b>			
1	toluene (2, 5) . . . . .	$\text{CH}_3\text{C}_6\text{H}_5(\text{OH})_2$ . . . . .	124.06	
2	" (2, 6) . . . . .	$\text{CH}_3\text{C}_6\text{H}_5(\text{OH})_2$ . . . . .	124.06	
3	" (3, 4) . . . . .	$\text{CH}_3\text{C}_6\text{H}_5(\text{OH})_2$ . . . . .	124.06	
4	<b>Diiodo-acetic acid</b> . . . . .	$\text{CHI}_2\text{CO}_2\text{H}$ . . . . .	311.96	
5	acetylene . . . . .	$\text{IC}:\text{Cl}$ . . . . .	277.94	
6	benzene (o.) . . . . .	$\text{C}_6\text{H}_4\text{I}_2$ . . . . .	329.97	
7	" (m.) . . . . .	$\text{C}_6\text{H}_4\text{I}_2$ . . . . .	329.97	
8	" (p.) . . . . .	$\text{C}_6\text{H}_4\text{I}_2$ . . . . .	329.97	
9	diacetylene . . . . .	$\text{IC}:\text{C}:\text{C}:\text{Cl}$ . . . . .	301.94	
10	hexane (1, 6) . . . . .	$\text{ICH}_2(\text{CH}_2)_4\text{CH}_2\text{I}$ . . . . .	338.04	
11	<b>Diiso-amyl</b> . . . . .	$(\text{CH}_3)_2\text{CHCH}_2\text{CH}_2)_2$ . . . . .	142.18	0.7358 <sup>9.8</sup> <sub>4</sub>
12	amyl amine (K.) . . . . .	$[(\text{CH}_3)_2\text{CH}.\text{CH}_2.\text{CH}_2)_2\text{NH}$ . . . . .	157.22	0.766 <sup>11</sup>
13	amyl carbonate . . . . .	$(\text{C}_5\text{H}_{11})_2\text{CO}_2$ . . . . .	202.18	0.912 <sup>15</sup>
14	amyl ketone . . . . .	$(\text{C}_5\text{H}_{11})_2\text{CO}$ . . . . .	170.18	
15	butyl amine . . . . .	$(\text{C}_4\text{H}_9)_2\text{NH}$ . . . . .	129.20	0.7491 <sup>15</sup>
16	butyl carbonate . . . . .	$(\text{C}_4\text{H}_9)_2\text{CO}_2$ . . . . .	174.15	0.919 <sup>15</sup>
17	butylene . . . . .	$(\text{CH}_3)_2\text{C}:\text{CHC}(\text{CH}_3)_2$ . . . . .	112.13	0.715 <sup>15</sup>
18	butyl oxalate . . . . .	$(\text{C}_4\text{H}_9)_2\text{C}_2\text{O}_4$ . . . . .	202.15	1.002 <sup>14</sup>
19	propyl carbinol . . . . .	$[(\text{CH}_3)_2\text{CH}]_2\text{CHOH}$ . . . . .	116.13	0.8288 <sup>9</sup>
20	propyl ketone . . . . .	$[(\text{CH}_3)_2\text{CH}]_2\text{CO}$ . . . . .	114.12	0.8062 <sup>9</sup>
21	<b>Dimethyl amine</b> . . . . .	$(\text{CH}_3)_2\text{NH}$ . . . . .	45.10	0.6865 <sup>-6</sup>
22	" " (K.) . . . . .	$(\text{CH}_3)_2\text{NH}$ . . . . .	45.10	0.6865 <sup>-5.8</sup> <sub>15</sub>
23	aniline . . . . .	$\text{C}_6\text{H}_5\text{N}(\text{CH}_3)_2$ . . . . .	122.13	0.9575 <sup>9</sup>
24	" (K.) . . . . .	$\text{C}_6\text{H}_5\text{N}(\text{CH}_3)_2$ . . . . .	122.13	0.954 <sup>11</sup>
25	anthracene . . . . .	$(\text{CH}_3)_2\text{C}_{14}\text{H}_8$ . . . . .	206.12	
26	" (2, 3) . . . . .	$(\text{CH}_3)_2\text{C}_{14}\text{H}_8$ . . . . .	206.12	
27	" (2, 4) . . . . .	$(\text{CH}_3)_2\text{C}_{14}\text{H}_8$ . . . . .	206.12	
28	arsine . . . . .	$(\text{CH}_3)_3\text{AsH}$ . . . . .	106.06	
29	benzoic acid (2, 3) . . . . .	$(\text{CH}_3)_2\text{C}_6\text{H}_3\text{CO}_2\text{H}$ . . . . .	150.08	
30	" " (3, 4) . . . . .	$(\text{CH}_3)_2\text{C}_6\text{H}_3\text{CO}_2\text{H}$ . . . . .	150.08	
31	" " (2, 4) . . . . .	$(\text{CH}_3)_2\text{C}_6\text{H}_3\text{CO}_2\text{H}$ . . . . .	150.08	
32	" " (2, 6) . . . . .	$(\text{CH}_3)_2\text{C}_6\text{H}_3\text{CO}_2\text{H}$ . . . . .	150.08	
33	" " (2, 5) . . . . .	$(\text{CH}_3)_2\text{C}_6\text{H}_3\text{CO}_2\text{H}$ . . . . .	150.08	
34	carbonate . . . . .	$(\text{CH}_3)_2\text{CO}_2$ . . . . .	90.05	1.069 <sup>22</sup>
35	ethyl acetic acid . . . . .	$(\text{CH}_3)_2(\text{C}_2\text{H}_5).\text{C}.\text{CO}_2\text{H}$ . . . . .	116.10	
36	benzene (s.) . . . . .	$\text{C}_6\text{H}_5.\text{C}_6\text{H}_5.(\text{CH}_3)_2$ . . . . .	134.12	0.861 <sup>20</sup>
37	benzene (3, 4) . . . . .	$\text{C}_2\text{H}_5.\text{C}_6\text{H}_5.(\text{CH}_3)_2$ . . . . .	134.12	0.8783 <sup>20</sup>
38	ethylene . . . . .	$(\text{CH}_3)_2\text{C}:\text{CH}.\text{C}_2\text{H}_5$ . . . . .	84.10	0.687 <sup>10</sup>

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	v. v. sol.	v. v. sol.	v. v. sol.	124°	part. subl.	leaflets. ....
2	v. soluble	v. soluble	.....	63-6°	.....	needles. ....
3	v. soluble	v. soluble	v. soluble	103-4°	267-70°	.....
4	s. soluble	.....	.....	110°	.....	yel. crystals .
5	v. sol. lig.	.....	.....	82°	volatile	clear need./lig
6	.....	soluble	.....	27°	286.5 C. <sup>751</sup>	pris. or tab...
7	.....	soluble	.....	40.4°	284.7° <sup>756</sup>	{ rhomb. tab. /al. + et.
8	.....	soluble	.....	129.4°	285° C.	leaflets. ....
9	.....	.....	soluble	101°	.....	crystalline. .
10	.....	.....	.....	6-7°	with steam	.....
11	.....	.....	.....	.....	159.5°	.....
12	s. soluble	soluble	∞	.....	185-9°	{ colorless to yellowish yellow oil. . .
13	.....	.....	.....	.....	228.7° C.	
14	.....	.....	.....	.....	226°	
15	.....	.....	.....	.....	139-40°	.....
16	.....	.....	.....	.....	190.3° C.	.....
17	.....	.....	.....	.....	102.5° C. <sup>756</sup>	.....
18	.....	.....	.....	.....	229°	.....
19	v. s. sol.	soluble	soluble	.....	140°	..... [bz.
20	sol. bz.	sol. toluene	.....	.....	123.7°	irreg. cryst.
21	soluble	soluble	.....	.....	7.2-7.3°	.....
22	v. soluble	v. soluble	soluble	.....	7-7.3°	.....
23	.....	soluble	.....	0.5°	195° <sup>768</sup>	.....
24	.....	soluble	∞	2-2.5°	192.5-3.5	yellowish. . .
25	.....	.....	.....	231-2°	.....	.....
26	v. sol. bz.	.....	.....	246°	.....	fluoresc. leaf.
27	v. sol. bz.	mod. sol.	.....	71°	.....	fine need./al.
28	.....	.....	.....	.....	36-7°	.....
29	v. sol. hot	soluble	.....	144°	.....	glassy pris./al
30	v. v. s. sol.	v. s. sol.	.....	163°	.....	prisms/al. . .
31	v. v. s. sol.	soluble	soluble	126°	268°	moncl. pris. /al.-need./w.
32	s. sol.	.....	.....	97-9°	.....	short need/w.
33	v. s. sol. hot	v. soluble	.....	132°	268° C.	long need./al.
34	insol.	.....	.....	0.5°	89.70°	.....
35	insol.	soluble	soluble	-14°	18.7°	.....
36	.....	.....	.....	< -20°	185°	.....
37	.....	.....	.....	.....	183-4°	.....
38	.....	.....	.....	.....	65-7° <sup>757</sup>	.....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
	<b>Dimethyl-</b>			
1	fumarate . . . . .	$(\text{CH}_3)_2\text{C}_4\text{H}_2\text{O}_4$ . . . . .	144.06	
2	isophthalate . . . . .	$(\text{CH}_3)_2\text{C}_8\text{H}_4\text{O}_4$ . . . . .	194.08	
3	isopropyl carbinol . . . . .	$(\text{CH}_3)_2(\text{C}_3\text{H}_7)\text{COH}$ . . . . .	102.12	0.8232 <sup>19</sup>
4	maleate . . . . .	$(\text{CH}_3)_2\text{C}_4\text{H}_2\text{O}_4$ . . . . .	144.06	1.1529 <sup>14</sup>
5	malonic acid . . . . .	$(\text{CH}_3)_2\text{C}(\text{CO}_2\text{H})_2$ . . . . .	132.06	
6	naphthaline (1, 4) . . . . .	$(\text{CH}_3)_2\text{C}_{10}\text{H}_8$ . . . . .	156.10	1.1803 <sup>12</sup>
7	" (β) . . . . .	$(\text{CH}_3)_2\text{C}_{10}\text{H}_8$ . . . . .	156.10	
8	α-naphthylamine . . . . .	$\text{C}_{10}\text{H}_7\text{N}(\text{CH}_3)_2$ . . . . .	171.15	1.0423 <sup>30</sup>
9	β- " . . . . .	$\text{C}_{10}\text{H}_7\text{N}(\text{CH}_3)_2$ . . . . .	171.15	
10	nitros-amine . . . . .	$(\text{CH}_3)_2\text{N.N.O}$ . . . . .	74.13	
11	pentene (2) (2, 3) . . . . .	$(\text{CH}_3)_2\text{C}:\text{C}(\text{CH}_3)\text{C}_2\text{H}_5$ . . . . .	98.12	0.7185 <sup>21</sup>
12	" (2) (2, 4) . . . . .	$(\text{CH}_3)_2\text{C}:\text{CH.CH}(\text{CH}_3)_2$ . . . . .	98.12	0.6985 <sup>14</sup>
13	phosphine . . . . .	$(\text{CH}_3)_2\text{PH}$ . . . . .	62.06	< 1
14	phosphinic acid . . . . .	$(\text{CH}_3)_2\text{PO.OH}$ . . . . .	94.06	
15	phthalate . . . . .	$\text{o.C}_6\text{H}_4(\text{CO}_2\text{CH}_3)_2$ . . . . .	194.08	
16	propyl carbinol . . . . .	$(\text{CH}_3)_2\text{C}(\text{OH}).\text{C}_3\text{H}_7$ . . . . .	102.12	
17	quinone (2, 3) . . . . .	$(\text{CH}_3)_2\text{C}_6\text{H}_2\text{O}_2$ . . . . .	136.06	
18	" (2, 6) . . . . .	$(\text{CH}_3)_2\text{C}_6\text{H}_2\text{O}_2$ . . . . .	136.06	
19	" (2, 5) . . . . .	$(\text{CH}_3)_2\text{C}_6\text{H}_2\text{O}_2$ . . . . .	136.06	
20	racemate . . . . .	$(\text{CH}_3)_2\text{C}_4\text{H}_4\text{O}_6$ . . . . .	178.08	
21	succinic acid (uns.) . . . . .	$(\text{CH}_3)_2\text{C}(\text{CO}_2\text{H})\text{CH}_2\text{CO}_2\text{H}$ . . . . .	146.08	
22	tartrate . . . . .	$(\text{CH}_3)_2\text{C}_4\text{H}_4\text{O}_6$ . . . . .	178.08	1.3403 <sup>15</sup>
23	terephthalate . . . . .	$\text{p.C}_6\text{H}_4(\text{CO}_2\text{CH}_3)_2$ . . . . .	194.08	
24	thiophene (2, 4) . . . . .	$(\text{CH}_3)_2\text{C}_4\text{H}_2\text{S}$ . . . . .	112.12	0.9956 <sup>20</sup>
25	" (2, 5) . . . . .	$(\text{CH}_3)_2\text{C}_4\text{H}_2\text{S}$ . . . . .	112.12	0.9859 <sup>12</sup>
26	trimethylene (1, 1) . . . . .	$(\text{CH}_3)_2\text{C}:(\text{CH}_2)_2$ . . . . .	70.08	0.6604 <sup>12</sup>
27	Dinaphthol (α) . . . . .	$\text{OH.C}_{10}\text{H}_6.\text{C}_{10}\text{H}_6\text{OH}$ . . . . .	286.12	
28	Dinaphthol (β) . . . . .	$\text{OH.C}_{10}\text{H}_6.\text{C}_{10}\text{H}_6\text{OH}$ . . . . .	286.12	
29	Dinaphthyl (αα) . . . . .	$(\text{C}_{10}\text{H}_7)_2$ . . . . .	254.12	
30	Dinaphthylmethane (α) . . . . .	$(\text{C}_{10}\text{H}_7)_2\text{CH}_2$ . . . . .	268.13	
31	" (β) . . . . .	$(\text{C}_{10}\text{H}_7)_2\text{CH}_2$ . . . . .	268.13	
32	Dinicotinic acid . . . . .	$1:2:4\text{C}_5\text{H}_5\text{N}(\text{CO}_2\text{H})_2$ . . . . .	167.08	
33	Dinitraline (2, 4) . . . . .	$(\text{NO}_2)_2\text{C}_6\text{H}_3\text{NH}_2$ . . . . .	183.16	
34	Dinitro-benzene (o.) . . . . .	$\text{C}_6\text{H}_4(\text{NO}_2)_2$ . . . . .	168.11	
35	" (m.) . . . . .	$\text{C}_6\text{H}_4(\text{NO}_2)_2$ . . . . .	168.11	1.369 <sup>28</sup>
36	" (p.) . . . . .	$\text{C}_6\text{H}_4(\text{NO}_2)_2$ . . . . .	168.11	
37	benzoic acid (2, 4) . . . . .	$(\text{NO}_2)_2\text{C}_6\text{H}_3.\text{CO}_2\text{H}$ . . . . .	212.11	

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	.....	s. soluble	s. soluble	102°	192° C.	triclin. prisms
2	.....	.....	.....	64.5°	dist.	.....
3	soluble	soluble	.....	-14°	117.6°	.....
4	.....	.....	.....	.....	205° C.	.....
5	10	s. soluble	v. soluble	192-3° dec.	sub. 120 +	quadrat. pris.
6	.....	.....	.....	< -18°	262-4°	.....
7	.....	.....	.....	< -18°	264-6°	.....
8	insol.	soluble	soluble	.....	274.5° C. <sup>711</sup>	.....
9	.....	.....	.....	46°	305°	crystalline...
10	.....	.....	.....	.....	153° <sup>774</sup>	yellow oil...
11	.....	.....	.....	.....	75-80°	.....
12	.....	.....	.....	.....	83-4°	.....
13	insol.	.....	.....	.....	25°	.....
14	v. soluble	.....	.....	76°	.....	crystalline...
15	.....	.....	.....	.....	282°	.....
16	.....	soluble	.....	< -38°	123°	.....
17	s. soluble	mod. sol.	mod. sol.	55°	sublimes	yellow need..
18	.....	.....	.....	72-3°	.....	yel. needles..
19	s. sol. hot	s. soluble	v. soluble	125°	sublimes	tricl. pris./al.
20	.....	soluble	.....	85°	282°	monoclinic/al
21	7.52 <sup>14</sup>	v. soluble	s. soluble	142°	165°→anh.	tricl. pris./bz.
22	.....	v. soluble	.....	48°	280°	crystalline...
23	0.33	.....	.....	140°	.....	trimetric need
24	.....	.....	.....	.....	137-8° C.	.....
25	.....	.....	.....	.....	136.5-7.5C.	.....
26	.....	.....	.....	.....	21°	.....
27	insol.	mod. sol.	v. soluble	v. soluble	300°	rhombic tab..
28	insol.	mod. sol.	v. soluble	218° C.	.....	flat need. or prisms
29	v. sol. bz.	mod. sol.	mod. sol.	154°	abt. 360°	rhomboidal..
30	sol. CHCl <sub>3</sub>	0.8 <sup>20</sup>	v. sol. bz.	109°	above 360°	short pris./al.
31	.....	v. soluble	sol. bz.	92°	.....	fine needles..
32	v. s. sol.	.....	.....	323°	decomp.	.....
33	insol.	0.7 <sup>21</sup>	.....	187.5-8°	.....	yel. moncl....
34	s. sol. hot	3.8 <sup>25</sup> ; 33 <sup>78</sup> abs.	.....	117.9°	.....	needles/w....
35	.....	3.5 <sup>20.5</sup>	.....	91°	297° C.	thin rhb. tab.
36	s. sol. hot	0.4 <sup>20.5</sup>	*	171-2°	sublimes	moncl. need..
37	1.85 <sup>25</sup>	v. soluble	.....	179°	.....	rhomb. tab. or prisms

\* 0.69 parts dissolve in 100 parts methyl alcohol at 20°.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
<b>Dinitro-</b>				
1	benzoic acid (2, 5) . . .	$(\text{NO}_2)_2\text{C}_6\text{H}_3\text{CO}_2\text{H}$ . . .	212.11	
2	" " (2, 6) . . .	$(\text{NO}_2)_2\text{C}_6\text{H}_3\text{CO}_2\text{H}$ . . .	212.11	
3	" " (3, 5) . . .	$(\text{NO}_2)_2\text{C}_6\text{H}_3\text{CO}_2\text{H}$ . . .	212.11	
4	diphenyl (o.p.) . . .	$\text{NO}_2\text{C}_6\text{H}_4\text{C}_6\text{H}_4\text{NO}_2$ . . .	244.14	
5	" (p.p.) . . .	$\text{NO}_2\text{C}_6\text{H}_4\text{C}_6\text{H}_4\text{NO}_2$ . . .	244.14	
6	methane . . .	$\text{CH}_2(\text{NO}_2)_2$ . . .	106.10	
7	phenol (2, 3) . . .	$(\text{NO}_2)_2\text{C}_6\text{H}_3\text{OH}$ . . .	184.11	
8	" (2, 4) . . .	$(\text{NO}_2)_2\text{C}_6\text{H}_3\text{OH}$ . . .	184.11	
9	" (2, 6) . . .	$(\text{NO}_2)_2\text{C}_6\text{H}_3\text{OH}$ . . .	184.11	
10	toluene (2, 4) . . .	$(\text{NO}_2)_2\text{C}_6\text{H}_3\text{CH}_3$ . . .	182.13	1.3208°
11	" (3, 4) . . .	$(\text{NO}_2)_2\text{C}_6\text{H}_3\text{CH}_3$ . . .	182.13	1.32
12	" (3, 5) . . .	$(\text{NO}_2)_2\text{C}_6\text{H}_3\text{CH}_3$ . . .	182.13	
13	Dioxindole . . .	$\text{C}_8\text{H}_5\text{NO}_2$ . . .	149.10	
14	Diphenol (α) . . .	$\text{OHC}_6\text{H}_4\text{C}_6\text{H}_4\text{OH}$ . . .	186.08	
15	" (β) . . .	$\text{OHC}_6\text{H}_4\text{C}_6\text{H}_4\text{OH}$ . . .	186.08	
16	" (γ) . . .	$\text{OHC}_6\text{H}_4\text{C}_6\text{H}_4\text{OH}$ . . .	186.08	
17	" (δ) . . .	$\text{OHC}_6\text{H}_4\text{C}_6\text{H}_4\text{OH}$ . . .	186.08	
18	Diphenyl . . .	$\text{C}_6\text{H}_5\text{C}_6\text{H}_5$ . . .	154.08	1.165
19	acetic acid . . .	$(\text{C}_6\text{H}_5)_2\text{CHCO}_2\text{H}$ . . .	212.10	
20	aniline . . .	$(\text{C}_6\text{H}_5)_2\text{NH}$ . . .	169.13	1.159
21	benzene (p.) . . .	$\text{C}_6\text{H}_5\text{C}_6\text{H}_4\text{C}_6\text{H}_5$ . . .	230.12	
22	diacetylene . . .	$\text{C}_6\text{H}_5\text{C}\equiv\text{CC}_6\text{H}_5$ . . .	202.08	
23	ethane (u.) . . .	$\text{CH}_3\text{CH}(\text{C}_6\text{H}_5)_2$ . . .	182.12	
24	hydrazine (aa) . . .	$(\text{C}_6\text{H}_5)_2\text{N.NH}_2$ . . .	184.18	
25	methane . . .	$(\text{C}_6\text{H}_5)_2\text{CH}_2$ . . .	168.10	
26	phosphine . . .	$(\text{C}_6\text{H}_5)_2\text{PH}$ . . .	186.09	1.0126°
27	o. tolyl-methane . . .	$(\text{C}_6\text{H}_5)_2\text{CHC}_6\text{H}_4\text{CH}_3$ . . .	258.15	1.071°
28	urea (uns.) . . .	$\text{NH}_2\text{CO.N}(\text{C}_6\text{H}_5)_2$ . . .	212.18	
29	Diphenylene oxide . . .	$<(\text{C}_6\text{H}_4)_2\text{O}$ . . .	168.08	
30	Dipicolinic acid . . .	1: 2- $6\text{C}_6\text{H}_3\text{N}(\text{CO}_2\text{H})_2$ + $1\frac{1}{2}\text{H}_2\text{O}$ . . .	194.07	
31	Dipropargyl . . .	$\text{CH}\equiv\text{C.CH}_2\text{CH}_2\text{C}\equiv\text{CH}$ . . .	78.05	0.8049°
32	Dipropyl amine . . .	$(\text{C}_3\text{H}_7)_2\text{NH}$ . . .	101.16	0.7357°
33	" (K.) . . .	$(\text{C}_3\text{H}_7)_2\text{NH}$ . . .	101.16	0.736°
34	carbinol . . .	$(\text{C}_3\text{H}_7)_2\text{CHOH}$ . . .	116.13	0.8200°
35	ketone . . .	$(\text{C}_3\text{H}_7)_2\text{CO}$ . . .	114.12	0.8205 <sup>16.1</sup> / <sub>4</sub>
36	" (K.) . . .	$(\text{C}_3\text{H}_7)_2\text{CO}$ . . .	114.12	0.822°
37	oxalate . . .	$(\text{C}_3\text{H}_7)_2\text{C}_2\text{O}_4$ . . .	174.12	1.0384°

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	s. sol. hot			177°		needles
2	mod.sol. hot			202° dec.		needles
3	2.0 <sup>100</sup>	v. soluble	s. soluble	204-5°		quad. tab./w.
4		v. sol. hot		93.5°		moncl. need.
5		mod.sol.hot		233°		fine needles.
6				exp. 100°		yel. crystals.
7	s. soluble	soluble	v. soluble	144°		yel. need/w.
8	0.5	3.9 <sup>10</sup>	v. soluble	113-4°		yel. tab./w...
9	s. soluble	soluble	v. soluble	61.78°		short yel. need./w.
10	insol.	s. soluble	2. 19 <sup>17</sup> CS <sub>2</sub>	70.5°		moncl. need.
11	insol.	soluble	2. 19 <sup>17</sup> CS <sub>2</sub>	60°		long need.CS <sub>2</sub>
12	s. soluble	mod. sol.	v. soluble mod.sol.CS <sub>2</sub>	92-3°	with steam	moncl. pris. /lig.
13	8.3	6.6	sol. alk.	180°	dec. 195°	rhomb. pris.
14	mod.sol. hot	v. soluble	v. soluble	123°		long flat need.
15	s. soluble	v. soluble	v. soluble	190°		small leaflets.
16	s. soluble	v. soluble	v. soluble	272°	sublimes	glit. leaf./al.
17	v. s. sol.	v. soluble	v. soluble	161°	342°	need. or mon. prisms
18	insol.	9.98	soluble	70.5°	254.6 C.	moncl. tab...
19	s. soluble	v. soluble	v. soluble	148°	part. sub.	needles/w...
20	s. soluble	soluble	soluble	54°	310°	moncl. leaf...
21	sol. hot bz.	v. s. sol.	s. soluble	205°	383-427°	small leaflets
22		v. soluble	v. soluble	88°		need. dil. al.
23					286°	oil.
24	v. s. sol.	v. soluble	v. soluble	34.5°	220°/ <sup>40</sup>	moncl./lig. .
25	insol.	v. soluble	v. soluble	26-7°	261-2°	prismat. need
26	insol.	v. soluble	v. soluble		280°	oil.
27	sol. bz.	s. soluble	v. soluble	59.5°	254°	irreg. prisms.
28				189°		long needles
29	insol.	mod. sol.	v. soluble	86-7°	287-8°	small. leaf./al
30	sol. hot	v. s. sol.		226° dec.		{ crusts,scales or needles
31			v. soluble	-6°	86-7°	
32	s. soluble			< -50°	109.4-10.4	
33	soluble	∞	soluble		109.5-10.5	colorless....
34		soluble	soluble		154°	
35	insol.				143.52°	
36	insol.	∞	∞		141-3°	colorless....
37					213.5° C.	

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Dipyridyl $\gamma$ . . . . .	$C_8H_4N_2C_6H_5N$ . . . . .	156.16	
2	Diquinoline . . . . .	$C_9H_7N.C_6H_5N$ . . . . .	258.20	
3	Diquinoyl (2, 3 <sup>1</sup> ) . . . . .	$C_9H_5N.C_6H_5N$ . . . . .	256.18	
4	" (6, 6 <sup>1</sup> ) . . . . .	$C_9H_5N.C_6H_5N$ . . . . .	256.18	
5	" (7, 2 <sup>1</sup> ) . . . . .	$C_9H_5N.C_6H_5N$ . . . . .	256.18	
6	Diorescine . . . . .	$(OH)_2C_6H_3.C_6H_3(OH)_2$ + $2H_2O$ . . . . .	254.12	
7	Dithio-glycerine . . . . .	$C_3H_8(OH)(SH)_2$ . . . . .	124.18	1.342 <sup>14-4</sup>
8	Ditolyl (o.) . . . . .	$CH_3.C_6H_4.C_6H_4.CH_3$ . . . . .	182.12	
9	" (o.m.) . . . . .	$CH_3.C_6H_4.C_6H_4.CH_3$ . . . . .	182.12	0.9993 <sup>2</sup>
10	" (m.) . . . . .	$CH_3.C_6H_4.C_6H_4.CH_3$ . . . . .	182.12	
11	" (p.p.) . . . . .	$CH_3.C_6H_4.C_6H_4.CH_3$ . . . . .	182.12	0.9172 <sup>21</sup>
12	amine (o.) . . . . .	$(CH_3C_6H_4)_2NH$ . . . . .	197.16	
13	" (m.) . . . . .	$(CH_3C_6H_4)_2NH$ . . . . .	197.16	
14	" (p.) . . . . .	$(CH_3C_6H_4)_2NH$ . . . . .	197.16	
15	Docosane . . . . .	$CH_3.(CH_2)_{20}.CH_3$ . . . . .	310.37	0.7782 <sup>2</sup>
16	Dodecane, n . . . . .	$CH_3.(CH_2)_{10}.CH_3$ . . . . .	170.22	0.7548 <sup>18</sup>
17	Dodecylene, n . . . . .	$C_{12}H_{22}$ . . . . .	168.20	0.7620 <sup>2</sup>
18	Dulcitol . . . . .	$C_6H_8(OH)_6$ . . . . .	182.12	1.466 <sup>16</sup>
19	Durol . . . . .	1: 2: 4: $5C_6H_5(CH_2)_4$ . . . . .	134.12	
20	Elaidic acid . . . . .	$C_{18}H_{34}HC:HC.CH_2.CO_2H$ . . . . .	282.28	
21	Ellagic acid . . . . .	$C_{14}H_6O_8 + 2H_2O$ . . . . .	338.08	1.667 <sup>18</sup>
22	Eosine . . . . .	$C_{20}H_8Br_2O_6$ . . . . .	647.90	
23	$\alpha$ -Epichlorhydrine . . . . .	$C_3H_5ClO$ . . . . .	92.49	1.2031 <sup>2</sup>
24	Erucic acid . . . . .	$C_{22}H_{42}.CO_2H$ . . . . .	338.34	
25	Erythrite . . . . .	$(CH_2OH.CHOH)_2$ . . . . .	122.08	1.59
26	anhydride . . . . .	$C_4H_6O_2$ . . . . .	86.05	1.1132 <sup>18</sup>
27	Ethane . . . . .	$CH_3.CH_3$ . . . . .	30.05	$\begin{cases} 0.446^0 \text{ liq.} \\ 1.036 \text{ gas} \end{cases}$
28	Ether . . . . .	$C_2H_5OC_2H_5$ . . . . .	74.08	0.7183 <sup>17</sup>
29	Ethoxy-benzoic acid (o.) . . . . .	$C_2H_5O.C_6H_4.CO_2H$ . . . . .	166.08	
30	" " (m.) . . . . .	$C_2H_5O.C_6H_4.CO_2H$ . . . . .	166.08	
31	" " (p.) . . . . .	$C_2H_5O.C_6H_4.CO_2H$ . . . . .	166.08	
32	Ethyl acetate . . . . .	$CH_3CO_2.C_2H_5$ . . . . .	88.06	0.90286 <sup>18.5</sup>
33	" " (K.) . . . . .	$CH_3CO_2.C_2H_5$ . . . . .	88.06	$\begin{cases} 0.8920- \\ 0.8955\# \end{cases}$
34	acetoacetate . . . . .	$CH_3CO.CH_2.CO_2.C_2H_5$ . . . . .	130.08	1.0282 <sup>2</sup>
35	acetylene . . . . .	$C_2H_2.C:CH$ . . . . .	54.05	
36	acrylate . . . . .	$C_2H_3O_2.C_2H_5$ . . . . .	100.06	0.9393 <sup>0</sup>
37	alcohol . . . . .	$C_2H_5.OH$ . . . . .	46.05	0.7937 <sup>2</sup>



Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	v. s. sol.	v. soluble	v. soluble	111-2°	304.8°	need. or tab..
2	insol.	v. soluble	v. soluble	114°	.....	yel. needles..
3	insol.	v. soluble	mod. sol.	176-7°	> 400°	{ moncl. tab. and need.
4	v. s. sol. hot	v. s. sol.	v. s. sol.	178°	dist.	mon. tab./al.
5	insol.	v. s. sol.	s. soluble	192.5°	sublimes	mon. tab./al.
6	s. soluble	.....	soluble	310°	.....	{ cryst. pow. or need.
7	insol.	v. sol. abs.	insol.	.....	dec. 130°	thick liquid..
8	.....	.....	.....	.....	272°	.....
9	.....	v. soluble	v. soluble	.....	288°	.....
10	.....	.....	.....	.....	280-1°	.....
11	.....	soluble	soluble	121°	dist.	moncl. pris.
12	.....	.....	.....	.....	312° <sup>0727</sup>	/et.
13	.....	v. soluble	v. soluble	< -12°	319-20°	.....
14	.....	.....	.....	79°	330.5°	long needles.
15	.....	.....	.....	44.4°	244.5° <sup>015</sup>	.....
16	.....	.....	.....	-12°	214.5° C.	.....
17	.....	.....	.....	-31.5°	213-5°	.....
18	3.2 <sup>15</sup>	0.7	insol.	188.5°	dec.	moncl. prisms
19	.....	v. soluble	v. soluble	79-80°	193-5°	crystalline...
20	insol.	soluble	soluble	51.5°	234° <sup>015</sup>	leaflets/al....
21	v. s. sol. hot	s. soluble	insol.	decompose	.....	yel. cryst. po.
22	insol.	soluble	sol. acet. ac	.....	.....	moncl. need..
23	insol.	.....	.....	.....	116° C.	.....
24	.....	v. soluble	.....	33-4°	281° <sup>030</sup>	needles/al. ...
25	v. soluble	s. soluble	insol.	126°	329-31°	quadrat. pris
26	∞ dec.	.....	.....	.....	138°	.....
27	.....	46 c.c. <sup>4</sup>	.....	-171.4°	-85.4° <sup>0740</sup>	.....
28	7.487 <sup>20</sup>	∞	∞	-112.6°	34.97°	.....
29	s. soluble	.....	.....	19.4°	.....	oil .....
30	s. sol. hot	.....	.....	137°	sub.	small needles
31	v. v. s. sol.	.....	.....	195°	.....	needles.....
32	6	∞	∞	-83.8°	77.4° C. <sup>754</sup>	.....
33	5.9 <sup>17-5</sup>	∞	∞	-83.8°	76-7°	colorless.....
34	s. soluble	.....	.....	< -80°	181°	.....
35	.....	.....	.....	.....	18° C.	.....
36	.....	.....	.....	.....	98.5° C.	.....
37	∞	.....	∞	-112.3°	78.4°	.....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
<b>Ethyl</b>				
1	allyl ether . . . . .	$C_2H_5.O.C_3H_5$ . . . . .	86.08	
2	amine . . . . .	$C_2H_5NH_2$ . . . . .	45.10	0.6994 <sup>8</sup>
3	amyl ketone . . . . .	$C_2H_5.CO.C_3H_5$ . . . . .	128.13	0.850 <sup>9</sup>
4	aniline . . . . .	$C_6H_5.NH.C_2H_5$ . . . . .	121.13	0.954 <sup>18</sup>
5	anthracene . . . . .	$C_{14}H_{10}$ . . . . .	206.12	
6	anisate . . . . .	$CH_3O.C_6H_4.CO_2C_2H_5$ . . . . .	180.10	
7	arsenate . . . . .	$(C_2H_5)_3AsO_4$ . . . . .	226.12	1.3264 <sup>9</sup>
8	arsenite . . . . .	$(C_2H_5)_3AsO_3$ . . . . .	210.12	1.224 <sup>1</sup>
9	benzene . . . . .	$C_6H_6$ . . . . .	106.08	0.8760 <sup>10</sup>
10	benzoate . . . . .	$C_6H_5.CO_2.C_2H_5$ . . . . .	150.08	1.0502 <sup>16</sup>
11	" (K.) . . . . .	$C_6H_5.CO_2.C_2H_5$ . . . . .	150.08	1.054 <sup>11</sup>
12	benzoic acid (o.) . . . . .	$C_6H_5.C_6H_4.CO_2H$ . . . . .	150.08	
13	" " (m.) . . . . .	$C_6H_5.C_6H_4.CO_2H$ . . . . .	150.08	
14	" " (p.) . . . . .	$C_6H_5.C_6H_4.CO_2H$ . . . . .	150.08	
15	benzyl ether . . . . .	$C_6H_5.O.CH_2.C_6H_5$ . . . . .	136.10	
16	" ketone . . . . .	$C_6H_5.CO.CH_2.C_6H_5$ . . . . .	148.10	0.998 <sup>17,18</sup>
17	borate . . . . .	$(C_2H_5)_3BO_3$ . . . . .	146.12	0.887 <sup>9</sup>
18	bromide . . . . .	$C_2H_5Br$ . . . . .	109.00	1.4499 <sup>18</sup>
19	" Phg. IV (K.) . . . . .	$C_2H_5Br$ . . . . .	109.00	1.453-1.457 <sup>11</sup>
20	butyl ether . . . . .	$C_2H_5.O.C_4H_9$ . . . . .	102.12	0.7522 <sup>20</sup>
21	n. butyl ketone . . . . .	$C_4H_9.CO.C_4H_9$ . . . . .	114.12	
22	butyrate . . . . .	$C_3H_7.CO_2.C_2H_5$ . . . . .	116.10	0.8978 <sup>18</sup>
23	caprate . . . . .	$C_8H_{17}.CO_2.C_2H_5$ . . . . .	200.20	0.862
24	caproate . . . . .	$C_6H_{11}.CO_2.C_2H_5$ . . . . .	144.13	0.8732 <sup>20</sup>
25	caprylate . . . . .	$C_7H_{13}.CO_2.C_2H_5$ . . . . .	172.16	0.8730 <sup>16</sup>
26	carbonate . . . . .	$(C_2H_5)_2CO_3$ . . . . .	118.08	0.9780 <sup>20</sup>
27	chloracetate . . . . .	$CH_3Cl.CO_2.C_2H_5$ . . . . .	122.51	1.1585 <sup>2</sup>
28	chlorocarbonate . . . . .	$ClCO_2.C_2H_5$ . . . . .	108.59	1.139 <sup>18</sup>
29	chloride . . . . .	$C_2H_5Cl$ . . . . .	64.49	0.9214 <sup>9</sup>
30	cinnamate . . . . .	$C_6H_5.C_2H_4.CO_2.C_2H_5$ . . . . .	176.10	1.0662 <sup>9</sup>
31	" (K.) . . . . .	$C_6H_5.C_2H_4.CO_2.C_2H_5$ . . . . .	176.10	1.049 <sup>11</sup>
32	collidinedicarbonate . . . . .	$C_6H_5N(CO_2C_2H_5)_2$ . . . . .	265.20	1.087 <sup>18</sup>
33	cyanate . . . . .	$C \equiv N.O.C_2H_5$ . . . . .	71.08	1.1272 <sup>18</sup>
34	cyanide . . . . .	$C_2H_5.CN$ . . . . .	55.08	0.7937 <sup>1</sup>
35	cyancarbonate . . . . .	$CN.CO_2.C_2H_5$ . . . . .	99.04	1.0139
36	diaceto-acetate . . . . .	$(CH_3CO)_2CH.CO_2.C_2H_5$ . . . . .	172.10	1.101 <sup>18</sup>
37	diazooacetate . . . . .	$C_2H_5.N_2O_2.C_2H_5$ . . . . .	114.13	1.083 <sup>14</sup>
38	dichloroacetate . . . . .	$CHCl_2.CO_2.C_2H_5$ . . . . .	156.95	1.2821 <sup>2</sup>
39	diphenylamine . . . . .	$C_6H_5N(C_6H_5)_2$ . . . . .	197.16	
40	disulphide . . . . .	$(C_2H_5)_2S_2$ . . . . .	122.20	0.9927 <sup>2</sup>

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1					66-7° <sup>743</sup>	
2	∞	∞	∞	-85.2°	18.7°	
3					170°	
4					206°	
5		soluble		60-1°		leaflets/al.
6				7°	269-5°	
7 dec.					235-8°	
8 dec.					165-6°	
9 insol.		∞	∞		136.5	
10 s. sol. hot	soluble	soluble	soluble		211.2° C.	
11 s. sol. hot	soluble		∞		209-12°	faint yellow
12				68°		fine flat need.
13 v. v. sol.				47°		long need./w.
14 sol. hot	v. soluble	v. soluble		112-3°		leaflets
15					185°	
16					223-6°	
17					120°	
18 0.914 <sup>20</sup>		∞	∞	-116°	38.37°	
19 s. soluble		∞	∞	-125.5°	38-40°	colorless.
20					91.4°	
21					147-8° <sup>743</sup>	
22 s. soluble	soluble	soluble	soluble		119.9°	
23					244°	
24 insol.	soluble	soluble			166.6°	
25				-48°	205.8°	
26		soluble			125.8° C.	leaflets
27 insol.					144.5° <sup>754</sup>	
28 decomp.					94°	
29 2		∞	∞		12.5°	
30	soluble			12°	271°	
31	soluble		∞	7.5°	270-1° dec.	yellowish.
32					308-10°	thick yel. oil.
33 insol.		∞	∞			
34 mod. sol.				-103.5°	97.08° C.	
35 insol.	soluble	soluble			115-6°	
36 s. soluble					200-5° dec	
37 s. soluble		∞	∞	-22°	140-1° <sup>720</sup>	oil.
38					157.7° <sup>755</sup>	
39	soluble				295-7°	
40					153° C. <sup>730</sup>	oil.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Ethyl fluoride .....	$C_2H_5F$ .....	48.04	1.7
2	formate. ....	$HCO_2.C_2H_5$ .....	74.05	0.9376†
3	" (K.) .....	$HCO_2.C_2H_5$ .....	74.05	0.920††
4	glutaconate. ....	$C_6H_4O_4(C_2H_5)_2$ .....	186.12	1.0499 <sup>9</sup>
5	glycerate. ....	$C_2H_3(OH)_2.CO_2.C_2H_5$ .....	134.08	1.093 <sup>6</sup>
6	glyceryl ether. ....	$CH_2OH.CHOH.CH_2O$ $C_2H_5$ .....	120.10	.....
7	glycol ether. ....	$HOCH_2.CH_2O.C_2H_5$ .....	90.08	0.926 <sup>13</sup>
8	glycollate. ....	$HOCH_2.CO_2.C_2H_5$ .....	104.06	1.0826 <sup>23</sup>
9	heptyl ether. ....	$C_7H_{15}.O.C_2H_5$ .....	144.16	0.7949 <sup>0</sup>
10	hexyl ether. ....	$C_6H_{13}.O.C_2H_5$ .....	130.15	.....
11	hydrazine. ....	$C_2H_5NH.NH_2$ .....	60.14	.....
12	hydrocollidine dicar- bonate	$C_{10}H_{11}NO_4(C_2H_5)_2$ .....	267.21	.....
13	hydroxylamine. ....	$C_2H_5NHOH$ .....	61.10	0.8827 <sup>7-5</sup>
14	hypochlorite .....	$C_2H_5ClO$ .....	80.49	.....
15	iodide. ....	$CH_3.CH_2I$ .....	156.01	1.9444 <sup>14</sup>
16	" (K.) .....	$CH_3.CH_2I$ .....	156.01	1.94††
17	isoamyl ether. ....	$C_5H_{11}.O.C_2H_5$ .....	116.13	0.764 <sup>18</sup>
18	isobutyl ether. ....	$C_4H_9.O.C_2H_5$ .....	102.12	0.7507
19	isobutyrate. ....	$(CH_3)_2CH.CO_2.C_2H_5$ .....	116.10	0.8904†
20	isobutyl ketone. ....	$C_5H_{10}.CO.C_2H_5$ .....	114.12	0.815 <sup>V</sup>
21	isocrotyl ether. ....	$(CH_3)_2C:CHOC_2H_5$ .....	100.10	.....
22	isocyanate. ....	$CNO.C_2H_5$ .....	71.08	0.8981
23	isocyanide. ....	$C:N.C_2H_5$ .....	55.08	0.7591 <sup>4</sup>
24	isopropyl ether. ....	$C_3H_7.O.CH(CH_3)_2$ .....	88.10	0.7447 <sup>0</sup>
25	" ketone. ....	$C_3H_7.CO.CH(CH_3)_2$ .....	100.10	0.8308
26	isovalerate. ....	$(CH_3)_2CH.CH_2.CO_2.C_2H_5$ .....	130.12	0.8717 <sup>18</sup>
27	lactate. ....	$C_3H_5O_2.C_2H_5$ .....	118.08	1.0308 <sup>19</sup>
28	laurate. ....	$C_{12}H_{23}O_2.C_2H_5$ .....	228.22	0.867 <sup>19</sup>
29	malonate. ....	$C_3H_2O_4.(C_2H_5)_2$ .....	160.10	1.0610 <sup>18</sup>
30	" (K.) .....	$C_3H_2O_4.(C_2H_5)_2$ .....	160.10	1.054††
31	mercaptan. ....	$C_2H_5SH$ .....	62.11	0.8391 <sup>20</sup>
32	monotartrate. ....	$CO_2H.(CHOH)_2.CO_2.C_2H_5$ .....	178.08	.....
33	mustard oil. ....	$C_2H_5NCS$ .....	87.14	0.9952 <sup>23</sup>
34	myristate. ....	$C_{14}H_{27}O_2.C_2H_5$ .....	256.26	.....
35	naphthaline (α). ....	$C_{10}H_7.C_2H_5$ .....	156.10	1.0184 <sup>10</sup>
36	" (β). ....	$C_{10}H_7.C_2H_5$ .....	156.10	1.0078 <sup>0</sup>
37	naphthyl ether (α). ....	$C_{10}H_7.OC_2H_5$ .....	172.10	1.0746†
38	" " (β). ....	$C_{10}H_7.OC_2H_5$ .....	172.10	.....
39	nitrate. ....	$C_2H_5NO_3$ .....	91.08	1.1159 <sup>16</sup>
40	" (K.) .....	$C_2H_5NO_3$ .....	91.08	1.104††

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	198 c.c. <sup>14</sup>	v. soluble	.....	.....	-32°	.....
2	11	∞	∞	.....	54.4°	.....
3	s. sol. dec.	∞	∞	.....	54-5°	colorless....
4	.....	.....	.....	.....	236-7°	.....
5	soluble	.....	.....	.....	230-240°	.....
6	.....	.....	.....	.....	225-30°	.....
7	soluble	∞	∞	.....	135°	.....
8	.....	.....	.....	.....	160° C.	.....
9	.....	.....	.....	.....	166.6°	.....
10	.....	.....	.....	.....	134-7°	.....
11	v. soluble	v. soluble	v. soluble	.....	99.5 <sup>0700</sup>	.....
12	v. v. s. sol.	s. soluble	s. soluble	131°	dec. 315°+	tablets/al....
13	∞	∞	∞	.....	68°	.....
14	.....	.....	.....	.....	36 <sup>0752</sup>	yellow....
15	0.403 <sup>20</sup>	soluble	soluble	.....	72.34°	.....
16	s. soluble	soluble	∞	-118°	71-2°	turns reddish
17	.....	.....	.....	.....	112°	.....
18	.....	.....	.....	.....	78-80°	.....
19	s. soluble	∞	∞	.....	110.1°	.....
20	.....	.....	.....	.....	136°	.....
21	.....	.....	.....	.....	92-4°	.....
22	insol.	.....	.....	.....	60°	.....
23	mod. sol.	.....	soluble	< -66°	78.1°	.....
24	soluble	∞	∞	.....	54°	.....
25	.....	v. soluble	.....	.....	114.5°	.....
26	insol.	∞	∞	.....	134.3°	.....
27	∞	.....	.....	.....	154.5° C.	.....
28	.....	.....	.....	-10°	269°	oil....
29	.....	.....	.....	-49.8° C.	197.7-8.2° C	.....
30	.....	∞	∞	.....	196.5-9.5	colorless....
31	1.5	soluble	soluble	-22°	36.2°	.....
32	soluble	.....	.....	90°	.....	rhomb. pris..
33	insol.	soluble	soluble	.....	131-2°	.....
34	.....	s. soluble	s. soluble	10.5-11.5	295°	.....
35	.....	.....	.....	< -14°	258° s. dec.	.....
36	.....	.....	.....	-19°	251°	.....
37	.....	.....	.....	< -5°	280.7° C.	.....
38	.....	.....	.....	33°	274-5°	cryst. mass.
39	insol.	soluble	soluble	-112° C.	87.6°	.....
40	v. s. sol.	∞	∞	-112°	86-7°	.....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Ethyl nitrite . . . . .	$C_2H_5NO_2$ . . . . .	75.08	0.900 <sup>15</sup>
2	o. nitro cinnamate . . . . .	$NO_2.C_6H_5O_2.C_2H_5$ . . . . .	221.13	.....
3	nitrolic acid . . . . .	$CH_3C.(NO_2)NOH$ . . . . .	104.11	.....
4	orthoacetate . . . . .	$CH_3C(OC_2H_5)_3$ . . . . .	162.15	0.94 <sup>22</sup>
5	orthocarbonate . . . . .	$C(OC_2H_5)_4$ . . . . .	192.16	0.925
6	orthoformate . . . . .	$HC(OC_2H_5)_3$ . . . . .	148.13	1.3922 <sup>18</sup>
7	orthosilicate . . . . .	$Si(OC_2H_5)_4$ . . . . .	208.56	0.933 <sup>20</sup>
8	oxalate . . . . .	$C_2H_4(C_2H_5)_2$ . . . . .	146.08	1.0815 <sup>18</sup>
9	" (K.) . . . . .	$C_2H_4(C_2H_5)_2$ . . . . .	146.08	1.076 <sup>18</sup>
10	palmitate . . . . .	$C_{16}H_{31}O_2.C_2H_5$ . . . . .	284.30	.....
11	perchlorate . . . . .	$C_2H_5ClO_4$ . . . . .	128.49	.....
12	phenol (o.) . . . . .	$C_6H_5.C_6H_4OH$ . . . . .	122.08	1.0371 <sup>0</sup>
13	phenyl acetylene . . . . .	$C_6H_5.C \equiv C.C_2H_5$ . . . . .	130.08	0.923 <sup>21</sup>
14	phenyl carbinol . . . . .	$C_6H_5.CH(OH).C_2H_5$ . . . . .	136.10	0.99 <sup>15</sup>
15	phenyl hydrazine (aa.) . . . . .	$C_6H_5.(C_2H_5)_2N.NH_2$ . . . . .	136.18	1.018 <sup>15</sup>
16	" " (ab.) . . . . .	$C_6H_5.NH.HNC_2H_5$ . . . . .	136.18	1. +
17	phenyl ketone . . . . .	$C_6H_5.CO.C_6H_5$ . . . . .	134.08	1.009 <sup>0</sup>
18	phenyl sulphone . . . . .	$C_6H_5.SO_2.C_6H_5$ . . . . .	170.14	1.01 <sup>22</sup>
19	phosphate . . . . .	$(C_2H_5)_3PO_4$ . . . . .	182.12	1.072 <sup>12</sup>
20	phosphine . . . . .	$C_2H_5PH_2$ . . . . .	62.06	<1.
21	propargyl ether . . . . .	$C_2H_5OC_2H_3$ . . . . .	84.06	0.8326 <sup>22</sup>
22	propiolate . . . . .	$C_3HO_2.C_2H_5$ . . . . .	98.05	.....
23	propionate . . . . .	$C_2H_5.CO_2.C_2H_5$ . . . . .	102.08	0.8964 <sup>18</sup>
24	" (K.) . . . . .	$C_2H_5.CO_2.C_2H_5$ . . . . .	102.08	0.885 <sup>18</sup>
25	propyl carbinol . . . . .	$C_3H_7.CHOH.C_2H_5$ . . . . .	102.12	0.8188 <sup>20</sup>
26	" ether . . . . .	$C_2H_5OC_3H_7$ . . . . .	88.10	0.7545 <sup>0</sup>
27	" ketone . . . . .	$C_2H_5.CO.C_3H_7$ . . . . .	100.10	0.818 <sup>17.5</sup>
28	pyridine (2) (α) . . . . .	$C_2H_5.C_5H_4N$ . . . . .	107.11	0.9498 <sup>0</sup>
29	pyrol (1) . . . . .	$C_2H_5.C_4H_4N$ . . . . .	95.11	0.9042 <sup>10</sup>
30	salicylate . . . . .	$HOC_6H_5.CO_2.C_2H_5$ . . . . .	166.08	1.1843 <sup>20</sup>
31	" (K.) . . . . .	$HOC_6H_5.CO_2.C_2H_5$ . . . . .	166.08	1.13 <sup>18</sup>
32	selenide . . . . .	$(C_2H_5)_2Se$ . . . . .	137.28	1. +
33	succinate . . . . .	$C_4H_4O_4(C_2H_5)_2$ . . . . .	174.12	1.0464 <sup>15</sup>
34	" (K.) . . . . .	$C_4H_4O_4(C_2H_5)_2$ . . . . .	174.12	1.038 <sup>18</sup>
35	succinic acid . . . . .	$CO_2H.CH(C_2H_5).CH_2CO_2H$ . . . . .	146.08	.....
36	sulphate . . . . .	$(C_2H_5)_2SO_4$ . . . . .	154.14	1.1837 <sup>10</sup>
37	sulphide . . . . .	$(C_2H_5)_2S$ . . . . .	90.14	0.8368 <sup>22</sup>
38	sulphinic acid . . . . .	$C_2H_5SO_2H$ . . . . .	94.11	.....
39	sulphite . . . . .	$(C_2H_5)_2SO_3$ . . . . .	138.14	1.1063 <sup>0</sup>
40	sulphocyanate . . . . .	$NCS.C_2H_5$ . . . . .	87.15	1.0071 <sup>12</sup>

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	insol.	∞	soluble	.....	16.4°	.....
2	{ v. sol. bz. and CS <sub>2</sub>	v. sol.	v. soluble	44°	.....	{ thin rhomb. need.
3	soluble	.....	soluble	81-2°	dec.	yel. rhombic.
4	.....	.....	.....	.....	142°	.....
5	.....	.....	.....	.....	153-9°	.....
6	.....	.....	.....	.....	145.5°	.....
7	decomp.	.....	.....	.....	165°	.....
8	s. soluble	soluble	.....	-41°	186.1° C.	.....
9	s. sol. dec.	∞	∞	-41°	184-5°	colorless. ....
10	.....	.....	.....	24.2°	.....	long flat need.
11	insoluble	soluble	soluble	.....	74°	oil. ....
12	.....	.....	.....	< -18°	206.5-7.5°	.....
13	.....	.....	.....	.....	201-3°	.....
14	.....	soluble	soluble	.....	219-20°	.....
15	.....	.....	.....	.....	237° C.	oil. ....
16	s. soluble	soluble	soluble	.....	dist.	oil. ....
17	.....	.....	.....	21°	218°	.....
18	mod.sol. hot	v. sol.	v. soluble	42°	> 300°	moncl. tab./et
19	decomp.	soluble	soluble	.....	215°	.....
20	.....	.....	.....	.....	25°	.....
21	s. soluble	∞	∞	.....	80°	.....
22	.....	v. soluble	v. soluble	.....	119°	oil. ....
23	s. soluble	∞	∞	.....	98.8° C.	.....
24	.....	∞	∞	.....	99-102°	colorless. ....
25	.....	soluble	.....	.....	135° C.	.....
26	soluble	∞	∞	.....	63.6.	.....
27	.....	.....	.....	.....	122-4°	.....
28	.....	.....	.....	.....	148.5 <sup>0752</sup>	.....
29	insol.	∞	∞	.....	131°	.....
30	.....	.....	.....	.....	231.5°	.....
31	.....	soluble	∞	1.5-2°	230.5-2.5	{ colorless to yellowish
32	insol.	.....	.....	.....	107-8°	.....
33	insol.	s. soluble	insoluble *	88-90°	216.5° C.	.....
34	insol.	soluble	∞	.....	215-6.5°	colorless. ....
35	v. soluble	v. soluble	v. soluble	98°	.....	fine prisms ..
36	insol.	dec. hot	.....	-24.5°	208° C. dec.	.....
37	insol.	soluble	soluble	.....	92.2-3° C.	.....
38	sol. alkali	.....	.....	.....	.....	syrup
39	.....	.....	.....	.....	161.3°	.....
40	insol.	∞	∞	.....	146° C.	.....

\* Very soluble chloroform ; insoluble ligroin and CS<sub>2</sub>

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Ethyl sulphone . . . . .	$(C_2H_5)_2SO_2$ . . . . .	122.14	1.357 <sup>20</sup>
2	“ chloride . . . . .	$C_2H_5SO_2Cl$ . . . . .	128.55	1.357 <sup>22</sup>
3	sulphonic acid . . . . .	$C_2H_5SO_3OH$ . . . . .	110.11	
4	sulphoxamate . . . . .	$NH_2CSCO_2C_2H_5$ . . . . .	133.15	
5	sulphoxide . . . . .	$(C_2H_5)_2SO$ . . . . .	106.14	
6	sulphuric acid . . . . .	$C_2H_5HSO_4$ . . . . .	126.11	1.316 <sup>16</sup>
7	tartrate (d.) . . . . .	$C_4H_4O_6(C_2H_5)_2$ . . . . .	206.12	1.2059 <sup>20</sup>
8	telluride . . . . .	$(C_2H_5)_2Te$ . . . . .	185.68	
9	thiocarbonate . . . . .	$CS(OC_2H_5)_2$ . . . . .	134.14	1.032 <sup>1</sup>
10	thymyl ether . . . . .	$C_8H_{10}OC_{10}H_{13}$ . . . . .	178.15	0.9334 <sup>9</sup>
11	toluene (o.) . . . . .	$C_6H_5.C_6H_4.CH_3$ . . . . .	120.10	0.8731 <sup>16</sup>
12	“ (m.) . . . . .	$C_6H_5.C_6H_4.CH_3$ . . . . .	120.10	0.869 <sup>20</sup>
13	“ (p.) . . . . .	$C_6H_5.C_6H_4.CH_3$ . . . . .	120.10	0.8652 <sup>21</sup>
14	toluate (o.) . . . . .	$CH_3.C_6H_4.CO_2.C_2H_5$ . . . . .	164.10	
15	“ (m.) . . . . .	$CH_3.C_6H_4.CO_2.C_2H_5$ . . . . .	164.10	
16	trichloracetate . . . . .	$CCl_3.CO_2.C_2H_5$ . . . . .	191.39	1.3826 <sup>2</sup>
17	valerate . . . . .	$C_5H_9O_2.C_2H_5$ . . . . .	130.12	0.8765 <sup>20</sup>
18	vanillate . . . . .	$C_8H_7O_4.C_2H_5$ . . . . .	196.10	
19	urea . . . . .	$C_2H_5NH.CO.NH_2$ . . . . .	88.14	1.213 <sup>18</sup>
20	Ethylene . . . . .	$CH_2:CH_2$ . . . . .	28.03	$\begin{cases} 1.0.610 \\ g.0.9784 \end{cases}$
21	acetate . . . . .	$(C_2H_5O_2).C_2H_4$ . . . . .	146.08	1.128 <sup>9</sup>
22	bromide . . . . .	$CH_2Br.CH_2Br$ . . . . .	187.95	2.1901 <sup>4</sup>
23	“ (K.) . . . . .	$CH_2Br.CH_2Br$ . . . . .	187.95	2.175 <sup>4</sup>
24	chloride . . . . .	$CH_2Cl.CH_2Cl$ . . . . .	98.93	1.2808 <sup>4</sup>
25	“ (K.) . . . . .	$CH_2Cl.CH_2Cl$ . . . . .	98.93	1.254 <sup>4</sup>
26	diamine . . . . .	$NH_2CH_2.CH_2NH_2 + H_2O$ . . . . .	78.14	0.970 <sup>15</sup>
27	diphenyl ether . . . . .	$C_6H_5(OC_6H_5)_2$ . . . . .	214.12	
28	glycol . . . . .	$OHCH_2.CH_2OH$ . . . . .	62.05	
29	“ (K.) . . . . .	$OHCH_2.CH_2OH$ . . . . .	62.05	1.113 <sup>4</sup>
30	iodide . . . . .	$CH_2I.CH_2I$ . . . . .	281.97	2.07
31	monoacetate . . . . .	$OHCH_2.CH_2OC_2H_5O$ . . . . .	102.05	1. +
32	nitrate . . . . .	$NO_3.CH_2.CH_2.NO_3$ . . . . .	152.11	1.5099 <sup>4</sup>
33	nitrate nitrite . . . . .	$NO_2.CH_2.CH_2.NO_3$ . . . . .	136.11	1.472
34	nitrite . . . . .	$NO_2.CH_2.CH_2.NO_2$ . . . . .	120.11	1.2156 <sup>9</sup>
35	oxide . . . . .	$<(CH_2)_2>O$ . . . . .	44.03	0.8966 <sup>9</sup>
36	Ethylidene bromide . . . . .	$CH_3.CHBr_2$ . . . . .	187.95	2.1001 <sup>17</sup>
37	chloride . . . . .	$CH_3.CHCl_2$ . . . . .	98.93	1.1863 <sup>2</sup>
38	iodide . . . . .	$CH_3.CHI_2$ . . . . .	281.97	2.84 <sup>9</sup>
39	urea . . . . .	$CO <(NH)_2>CH.CH_3$ . . . . .	86.13	
40	Eucalyptol . . . . .	$C_{10}H_{18}O$ . . . . .	154.15	0.9267 <sup>20</sup>
41	Eugenol . . . . .	$C_{10}H_{12}O_2$ . . . . .	164.10	0.0630 <sup>18</sup>



Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	15.6 <sup>18</sup>	.....	.....	70°	248°	rhombic ....
2	dec.	.....	.....	.....	177.5° C.	.....
3	deliq.	soluble	sol. alkali	.....	.....	cryst. mass. .
4	v. sol. hot	v. soluble	v. soluble	63°	.....	lemon yel pris
5	v. soluble	.....	.....	.....	decomp.	thick liquid..
6	v. soluble	soluble	soluble	.....	decomp.	syrup .....
7	insol.	soluble	soluble	.....	280°	.....
8	v. v. s. sol.	.....	.....	.....	137-8°	reddish yel. .
9	insol.	v. soluble	v. soluble	.....	161-2°	.....
10	.....	soluble	.....	.....	226.9°	.....
11	.....	.....	.....	< -17°	158-9°	.....
12	insol.	soluble	soluble	.....	158-9°	.....
13	insol.	soluble	soluble	.....	161-2°	.....
14	.....	.....	.....	.....	221°	.....
15	.....	.....	.....	.....	226-8°	.....
16	.....	.....	.....	.....	167.1 <sup>0755</sup>	.....
17	.....	.....	.....	.....	144.5°	.....
18	.....	.....	.....	44°	291-3°	crystal .....
19	v. v. sol.	v. v. sol.	insol. abs.	91°	.....	moncl. prisms
20	25.63 c.c. <sup>0</sup>	359.5 c.c.	soluble	-169°	-102.7°	.....
21	14.3	soluble	soluble	.....	186-7°	.....
22	insol.	soluble	.....	9.53°	131.6°	.....
23	v. s. sol.	soluble	∞	9.5-10°	129.5-31.5	colorless to yel
24	0.869 <sup>20</sup>	soluble	.....	.....	83.5° C.	.....
25	v. s. sol.	soluble	∞	-40°	83-4.5°	colorless .....
26	soluble	.....	.....	10°	116.5°	.....
27	v. s. sol.	s. soluble	v. soluble	98.5°	.....	crystals ....
28	soluble	.....	1.1	-17.4°	197.37°	.....
29	∞	∞	v. s. sol.	-20°	194-8°	colorless .....
30	.....	soluble	.....	81-2°	dec.	pris. or tab...
31	∞	soluble	.....	.....	182°	.....
32	.....	soluble	.....	*	.....	.....
33	.....	soluble	.....	.....	not volatile	oil .....
34	insol.	soluble	soluble	< -15°	96-8°	.....
35	∞	∞	∞	.....	13.5 <sup>0748</sup>	.....
36	.....	.....	.....	.....	112.5 <sup>0755</sup>	.....
37	0.550 <sup>20</sup>	.....	.....	.....	59.9° C.	.....
38	.....	.....	.....	.....	177-9°	.....
39	v. v. s. sol.	s. soluble	v. v. s. sol.	154°	dec. 160°	small needles
40	.....	.....	.....	-1-3°	176°	.....
41	v. s. sol.	v. soluble	v. soluble	.....	247.5° dec.	oil .....

\* Explodes by percussion.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Euxanthic acid.....	$C_{19}H_{18}O_{11}$ .....	458.18	
2	Euxanthone.....	$C_{18}H_8O_4$ .....	228.06	
3	Filixic acid.....	$C_{14}H_{16}O_5$ .....	264.13	
4	Flavaniline.....	$C_{16}H_{14}N_2$ .....	234.20	
5	Flavopurpurin.....	$C_{14}H_5(OH)_3O_2$ .....	256.06	
6	Fluor acetic acid.....	$CH_2F.CO_2H$ .....	78.03	
7	Fluoran.....	$C_{20}H_{12}O_3$ .....	300.10	
8	Fluoranthene.....	$C_{15}H_{10}$ .....	190.08	
9	Fluor-benzene.....	$C_6H_5F$ .....	96.04	1.0236 <sup>2</sup>
10	benzoic acid (o.).....	$FC_6H_4.CO_2H$ .....	140.04	
11	“ “ (m.).....	$FC_6H_4.CO_2H$ .....	140.04	
12	“ “ (p.).....	$FC_6H_4.CO_2H$ .....	140.04	
13	Fluorene.....	$(C_6H_4)_2.CH_2$ .....	166.08	
14	Fluorescein.....	$C_{20}H_{12}O_5$ .....	332.10	
15	Fluoroform.....	$CHF_3$ .....	70.01	
16	Fluortoluene (p.).....	$FC_6H_4.CH_3$ .....	100.06	0.992 <sup>25</sup>
17	Formic acid.....	$H.CO_2H$ .....	46.02	1.2448 <sup>3</sup>
18	“ (K.).....	$H.CO_2H$ .....	46.02	1.219 <sup>34</sup>
19	Formaldehyde.....	$HCOH$ .....	30.02	0.8153 <sup>-20</sup>
20	Formamide.....	$HCONH_2$ .....	45.07	1.337 <sup>4</sup>
21	Formanilid.....	$HCONHC_6H_5$ .....	121.10	
22	Fructose (d.).....	$C_6H_{12}O_6$ .....	180.10	1.555 <sup>9</sup>
23	Fuchsin.....	$C_{20}H_{19}N_3HCl$ .....	337.74	1.220
24	Fulminic acid.....	$C_2H_2N_2O_2$ .....	86.08	
25	Fulminuric acid.....	$C_3H_3N_3O_3$ .....	129.12	
26	Fumaric acid.....	$CO_2H.CH:CH.CO_2H$ .....	116.03	1.625
27	Furfural.....	$C_4H_3O.COH$ .....	96.03	1.1594 <sup>20</sup>
28	“ (K.).....	$C_4H_3O.COH$ .....	96.03	1.158 <sup>34</sup>
29	Furfuramide.....	$(C_4H_4O)_3N_2$ .....	268.18	
30	Furfuran.....	$C_4H_4O$ .....	68.03	0.9444 <sup>15</sup>
31	Furfuryl alcohol.....	$C_4H_3O.CH_2OH$ .....	98.05	1.1355 <sup>20</sup>
32	Galactose (d.).....	$C_6H_{12}O_6$ .....	180.10	
33	Gallic acid 3: 4: 5.....	$(OH)_3C_6H_2CO_2H + H_2O$ .....	188.07	1.694 <sup>4</sup>
34	Geranial.....	$C_{10}H_{18}O$ .....	154.15	0.8829 <sup>15</sup>
35	Guanine.....	$C_5H_5N_5O$ .....	151.24	
36	Guiacol.....	$o.CH_3O.C_6H_4OH$ .....	108.06	1.143 <sup>15</sup>

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	s. soluble	mod. sol.	v. soluble	156-8°	dec.	glit. yel. need
2	insol.	soluble	s. soluble	240° C.	sub. dec.	{ pale yel. leaf. or need.
3	insol.	v. v. s. sol.	mod. sol.	184.5°	.....	v. sm. leaf./et
4	v. s. sol.	soluble	sol. bz.	97°	dist.	lrg. pris./bz..
5	v. s. sol. hot	v. s. sol.	s. soluble	459° C.	sub.	yel. need./al.
6	.....	.....	.....	33°	165°	.....
7	sol. H <sub>2</sub> SO <sub>4</sub>	soluble	.....	180°	.....	flat needles..
8	sol. CS <sub>2</sub>	s. soluble	v. soluble	109-10°	217° <sup>30</sup>	monoclinic...
9	.....	.....	.....	< -20°	85°	.....
10	s. soluble	v. soluble	v. soluble	117-8°	.....	fine need./w..
11	.....	.....	.....	123-4°	.....	leaflets/w..
12	s. soluble	soluble	soluble	182°	.....	rhmb. pris./w
13	v. sol. bz., C.S <sub>2</sub>	s. soluble	v. soluble	112-3°	295° C.	leaflets/al....
14	sol. alkali	soluble	s. soluble	no m.p.	dec. 290°	cryst. powder
15	.....	.....	.....	.....	20° <sup>40</sup> at.	.....
16	.....	.....	.....	.....	116-7°	.....
17	∞	.....	.....	8.6°	100.8°	.....
18	∞	∞	∞	7.5°	100-1°	.....
19	soluble	soluble	.....	.....	-21°	.....
20	soluble	soluble	.....	-1°	192-5°	.....
21	mod. sol.	v. soluble	soluble	46°	.....	quad. pris./w.
22	v. soluble	20	soluble	95°	.....	trimetric....
23	s. soluble	soluble	.....	.....	.....	rhomb. tab...
24	.....	.....	v. soluble	.....	.....	.....
25	soluble	soluble	soluble	.....	exp. 145°	needles/al....
26	0.66 <sup>16</sup>	soluble	soluble	286-7°	sub. 200° +	prisms.....
27	9 <sup>13</sup>	soluble	soluble	.....	161°	{ bright yel.
28	9 <sup>13</sup>	∞	∞	.....	160-2°	{ → dark yel.
29	insol.	v. soluble	v. soluble	117°	250° dec.	{ thin short
30	insol.	v. soluble	v. v. sol.	.....	31.4-5° <sup>756</sup>	{ needles
31	s. soluble	v. soluble	v. soluble	.....	168-70°	syrup.....
32	v. soluble	s. soluble	.....	170-1°	.....	hexag. tab./a
33	0.8 <sup>12</sup> ; 33 <sup>100</sup>	27.95	2.50	222-40°	dec.	need. or tric. prism
34	insol.	∞	∞	< -15°	229-30°	.....
35	insol.	v. s. sol.	v. s. sol.	dec.	.....	{ need. or tab. NH <sub>3</sub>
36	1.67 <sup>16</sup>	soluble	.....	-123°	205.1°	rhomb. prism.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Gluconic acid (d.) . . . . .	$\text{OHCH}_2(\text{CHOH})_4\text{CO}_2 + 2\text{H}_2\text{O}$	234.14	
2	Glucose (d.) . . . . .	$\text{C}_6\text{H}_{12}\text{O}_6 + \text{H}_2\text{O}$	198.12	1.54-1.57
3	Glucose oxime (d.) . . . . .	$\text{C}_6\text{H}_{12}\text{O}_6 : \text{NOH}$	195.15	
4	pentacetate (a) . . . . .	$\text{C}_6\text{H}_7\text{O}_5(\text{C}_2\text{H}_5\text{O})_5$	390.18	
5	phenyl hydrazone (a) . . . . .	$\text{C}_6\text{H}_{12}\text{O}_6\text{N}_2\text{HC}_6\text{H}_5$	270.23	
6	“ “ (β) . . . . .	$\text{C}_6\text{H}_{12}\text{O}_6\text{N}_2\text{HC}_6\text{H}_5$	270.23	
7	Glutacanic acid . . . . .	$\text{CO}_2\text{H}.\text{CH}_2.\text{CH} : \text{CHCO}_2\text{H}$	130.05	
8	anhydride . . . . .	$\text{C}_5\text{H}_4\text{O}_3$	112.03	
9	Glutaminic acid . . . . .	$\text{C}_5\text{H}_8\text{NH}_2(\text{CO}_2\text{H})_2$	147.11	
10	Glutaric acid . . . . .	$\text{CO}_2\text{H} . (\text{CH}_2)_3 \text{CO}_2\text{H}$	132.06	
11	anhydride . . . . .	$\text{C}_5\text{H}_4\text{O}_3$	114.02	
12	Glyceric acid . . . . .	$\text{OHCH}_2.\text{CHOH}.\text{CO}_2\text{H}$	106.05	
13	aldehyde . . . . .	$\text{OHCH}_2.\text{CHOH}.\text{CHO}$	90.05	
14	Glycerine . . . . .	$\text{OHCH}_2.\text{CHOH}.\text{CH}_2\text{OH}$	92.06	1.2604 <sup>2</sup>
15	acetates . . . . .	*		
16	mononitrate . . . . .	$\text{CH}_2\text{OH}.\text{CHOH}.\text{CH}_2\text{NO}_3$	137.10	
17	trinitrate . . . . .	$\text{CH}_2\text{NO}_3.\text{CHNO}_3.\text{CH}_2\text{NO}_3$	227.16	1.6009 <sup>15</sup>
18	trinitrite . . . . .	$\text{CH}_2\text{NO}_2.\text{CHNO}_2.\text{CH}_2\text{NO}_2$	179.16	1.2914 <sup>16</sup>
19	Glyceryl ether . . . . .	$\text{C}_3\text{H}_5 : \text{O}_3 : \text{C}_3\text{H}_5$	130.08	1.0907 <sup>18</sup>
20	Glycid . . . . .	$\text{C}_2\text{H}_3\text{O}.\text{CH}_2\text{OH}$	74.05	1.165 <sup>9</sup>
21	Glycocholic acid . . . . .	$\text{C}_{26}\text{H}_{48}\text{NO}_6$	465.39	
22	Glycocoll . . . . .	$\text{NH}_2\text{CH}_2\text{CO}_2\text{H}$	75.08	1.1607
23	Glycogen . . . . .	$(\text{C}_6\text{H}_{10}\text{O}_5)_x$	162.08	
24	Glycol . . . . .	$\text{CH}_2\text{OH}.\text{CH}_2\text{OH}$	62.05	1.125 <sup>9</sup>
25	aldehyde . . . . .	$\text{CH}_2\text{OH}.\text{CHO}$	60.03	
26	amide . . . . .	$\text{CH}_2\text{OH}.\text{CONH}_2$	75.08	
27	diacetate . . . . .	$\text{C}_2\text{H}_3\text{O}_2.\text{CH}_2.\text{CH}_2.\text{C}_2\text{H}_3\text{O}_2$	146.08	1.128 <sup>9</sup>
28	dimethyl ether . . . . .	$\text{CH}_3\text{OCH}_2.\text{CH}_2\text{OCH}_3$	90.08	0.8732 <sup>30</sup>
29	Glycollic acid . . . . .	$\text{OHCH}_2.\text{CO}_2\text{H}$	76.03	
30	anhydride . . . . .	$\text{C}_4\text{H}_6\text{O}_5$	134.05	
31	Glycollid . . . . .	$\text{C}_2\text{H}_3\text{O}_2$	58.02	
32	Glycol monoacetate . . . . .	$\text{CH}_2\text{OH}.\text{CH}_2\text{O}.\text{C}_2\text{H}_3\text{O}$	104.06	
33	urea . . . . .	$\text{C}_3\text{H}_4\text{N}_2\text{O}_2$	100.11	
34	Glyoxal . . . . .	$\text{CHO}.\text{CHO}$	58.02	
35	Glyoxalic acid . . . . .	$\text{CHO}.\text{CO}_2\text{H} + \text{H}_2\text{O}$	92.03	
36	Glyoxalin . . . . .	$\text{C}_3\text{H}_4\text{N}_2$	68.11	

\* See mono-, di-, and triacetins.

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	v. soluble	insol.	.....			syrup.....
2	81.68 <sup>17</sup>	s. soluble	insol.	146°		need./abs. al.
3	v. soluble	v. s. sol.	insol.	136.7°		sm. need. meth. al.
4	s. soluble	mod. sol.	v. soluble †	111-2°		fine need./lig.
5	v. soluble	v. sol. hot	v. v. s. sol.	144-5°		v. small cryst
6	.....	more sol. than α	.....	115-6°		long needles.
7	v. soluble	v. soluble	v. soluble	138°		prisms/et. . .
8	.....	.....	soluble	87°		flat need./et..
9	1 <sup>14</sup>	s. soluble	insol.	202-5°		rhombic.....
10	{ 63.9 <sup>20</sup> , 111.8 <sup>05</sup>	v. sol.	v. soluble	97.5°	302-4°	moncl. prisms
11	v. s. sol.	.....	s. soluble	56-7°	287° C.	thin needles..
12	∞	∞	insol.	.....	[steam	syrup.....
13	slowly	v. v. s. sol.	v. v. s. sol.	abt. 132°	not vol. in	crystals . . . .
14	∞	∞	insol.	17°	290° C.	rhombic.....
15	.....	.....	.....	.....	.....	.....
16	v. soluble	v. soluble	s. soluble	.....	.....	.....
17	0.12	25	∞	-20°	exp. 260°	yellow oil....
18	insol.	decomp.	soluble	.....	150°	yellow . . . .
19	∞	∞	∞	.....	171-3°	.....
20	∞	∞	∞	.....	161-2° dec	.....
21	3.3 <sup>20</sup>	soluble	0.093	132-4°	.....	needles.....
22	23.2	insol.	.....	232-6° C.	.....	monoclinic . .
23	v. soluble	insol.	.....	abt. 240°	.....	amorph. pow.
24	∞	∞	1.1	-17.4°	197.37°	sweet
25	v. soluble	v. sol. hot	s. soluble	95-7°	s. vol. in	plates.....
26	.....	v. soluble	s. soluble	120°	[steam	crystals.....
27	14	soluble	soluble	.....	186-7°	.....
28	.....	.....	.....	.....	83-4°	.....
29	∞	∞	∞	78-9°	dec.	rhomb. moncl
30	insol.	insol.	insol.	128-30°	dec.	powder.....
31	insol.	s. soluble	s. soluble	82°; 86-7°	.....	leaflets/al....
32	∞	∞	∞	.....	182°	.....
33	mod. sol.	.....	.....	216°	.....	needles.....
34	v. soluble	soluble	soluble	.....	dec. 160°	amorphous . .
35	v. soluble	.....	.....	.....	with steam	rhomb. prism
36	soluble	v. soluble	soluble	88-9°	255°	thick prisms.

† V. sol. et., chlo., bz. and acet. ac.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Glyoxime.....	$\text{OHN:CH:CH:NOH}$ ....	88.11	
2	Guaiacol.....	$\text{o.OH.C}_6\text{H}_4.\text{OCH}_3$ .....	124.06	1.143 <sup>15</sup>
3	Guanidene.....	$\text{NH:C(NH)}_2$ .....	59.16	
4	Haematoxylin.....	$\text{C}_{16}\text{H}_{14}\text{O}_6 + 3\text{H}_2\text{O}$ .....	356.16	
5	Helicin (l.).....	$\text{C}_{13}\text{H}_{10}\text{O}_7 + \frac{1}{2}\text{H}_2\text{O}$ .....	284.13	
6	Hemimelitic acid.....	$\text{C}_6\text{H}_5(\text{CO}_2\text{H})_3$ 1: 2: 3.....	212.05	
7	Hemipinic acid.....	$(\text{CH}_3\text{O})_2\text{C}_6\text{H}_2(\text{CO}_2\text{H})_2 + 2\text{H}_2\text{O}$ .....	226.08	
8	Heptadecane.....	$\text{C}_{17}\text{H}_{36}$ .....	240.29	0.7766 <sup>2</sup>
9	Heptamethylene.....	$(\text{CH}_2)_7$ .....	98.12	0.8094 <sup>20</sup>
10	Heptane (n.).....	$\text{CH}_3(\text{CH}_2)_5\text{CH}_3$ .....	100.13	0.6885 <sup>15</sup>
11	".....	$(\text{CH}_3)_2\text{C}(\text{C}_2\text{H}_5)_2$ .....	100.13	0.7111 <sup>0</sup>
12	".....	$\text{HC}(\text{C}_2\text{H}_5)_3$ .....	100.13	0.689 <sup>27</sup>
13	".....	$\text{C}_2\text{H}_5\text{CH}(\text{CH}_2)_3\text{C}_2\text{H}_7$ .....	100.13	0.6895 <sup>20</sup>
14	Hepten(3)oic(1) acid.....	$\text{C}_7\text{H}_{12}\text{CH:CH.CH}_2\text{CO}_2\text{H}$ .....	128.10	
15	Heptene.....	$\text{C}_7\text{H}_{12}$ .....	96.10	0.8031 <sup>20</sup>
16	Heptic acid (n.).....	$\text{CH}_3(\text{CH}_2)_5\text{CO}_2\text{H}$ .....	130.12	0.9183 <sup>20</sup>
17	anhydride.....	$(\text{C}_6\text{H}_{13}\text{CO})_2\text{O}$ .....	242.21	0.932 <sup>21</sup>
18	Heptone.....	$\text{C}_7\text{H}_{14}$ .....	94.08	
19	Heptyl acetate (n.).....	$\text{C}_2\text{H}_3\text{O}_2\text{C}_7\text{H}_{15}$ .....	158.15	0.874 <sup>16</sup>
20	alcohol.....	$\text{CH}_3(\text{CH}_2)_5\text{CH}_2\text{OH}$ .....	116.13	0.830 <sup>16</sup>
21	Heptylene (1).....	$\text{CH}_3(\text{CH}_2)_4\text{CH:CH}_2$ .....	98.12	0.7026 <sup>19</sup>
22	Heptyl ether (n.).....	$(\text{C}_7\text{H}_{15})_2\text{O}$ .....	214.24	0.815 <sup>9</sup>
23	formate.....	$\text{HCO}_2\text{C}_7\text{H}_{15}$ .....	144.13	0.894 <sup>9</sup>
24	Hesperidine.....	$\text{C}_{22}\text{H}_{26}\text{O}_{12}$ .....	482.21	
25	Hexabrom ethane.....	$\text{CBr}_3\text{CBr}_3$ .....	403.76	
26	Hexachlor benzene.....	$\text{CCl}_6$ .....	284.70	1.569 <sup>23a</sup>
27	ethane.....	$\text{CCl}_3\text{CCl}_3$ .....	236.70	2.011
28	Hexadecane.....	$\text{C}_{16}\text{H}_{34}$ .....	226.27	0.7754 <sup>2</sup>
29	Hexaethyl benzene.....	$\text{C}_6(\text{C}_2\text{H}_5)_6$ .....	246.24	
30	Hexahydro-anthracene.....	$\text{C}_{14}\text{H}_{10}$ .....	184.13	
31	benzene.....	$\text{C}_6\text{H}_{12}$ .....	84.10	0.790 <sup>2</sup>
32	benzoic acid.....	$\text{C}_6\text{H}_5\text{CO}_2\text{H}$ .....	128.10	
33	cymene.....	$\text{CH}_3\text{C}_6\text{H}_{10}\text{C}_3\text{H}_7$ .....	140.16	0.8116 <sup>17</sup>
34	cumene.....	$\text{C}_3\text{H}_7\text{C}_6\text{H}_{11}$ .....	126.15	0.787 <sup>20</sup>
35	mellitic acid.....	$\text{C}_6\text{H}_6(\text{CO}_2\text{H})_6$ .....	348.10	
36	salicylic acid.....	$\text{OHC}_6\text{H}_4\text{CO}_2\text{H}$ .....	144.10	
37	toluene.....	$\text{CH}_3\text{C}_6\text{H}_{11}$ .....	98.12	0.769 <sup>2</sup>
38	m-xylene.....	$(\text{CH}_3)_2\text{C}_6\text{H}_{10}$ .....	112.13	0.759 <sup>2</sup>
39	Hexahydroxy benzene.....	$\text{C}_6(\text{OH})_6$ .....	174.10	

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	v. s. sol. hot	insol.	insol.	176°	sub.	rhomb. tab./w
2	1.7	soluble	soluble	31-2°	205.1°	rhombohedral
3						crystals
4	s. soluble	soluble	soluble	140°		tetrag. prisms
5	v. sol. 100°	soluble	insol.	175°		v. fine need..
6	s. soluble			185° dec.	dec.	needles.....
7	s. soluble	mod. sol.		165-6°	sublimes	crystals.....
8				22.5°	303°	hexag. tab...
9					117° <sup>0743</sup>	oil.....
10		soluble	soluble		98.4°	
11		soluble	soluble		86-7°	
12		soluble	soluble		95-8°	
13					91°	
14				< -18°	226-8° C.	
15					103-4°	
16		soluble		-10.5°	223-3.5°	
17					268-71°	
18					115°	
19					191.5°	
20	soluble	∞	∞		175.8°	
21		soluble			98-9°	
22					261.9°	
23					176-7°	
24	0.02	s. soluble	insol.	251° dec.		v. sm. need...
25		s. soluble	s. soluble		dec. 210°	prisms.....
26		insol. cold	v. s. sol.	226°	326°	prisms.....
27	insol.	v. soluble	v. soluble		185° C.	rhomb. tab.
28		∞	∞	19-20°	287.5°	pearly leaflets
29	insol.	soluble	v. soluble	129°	298° C.	long moncl.pr.
30	v. sol. bz.	v. soluble	v. soluble	63°	290°	leaflets.....
31				4.7°	80.8°	
32	s. soluble	v. soluble	v. soluble	30.5-1°	232-3°	leaflets.....
33					171-3°	
34					147-50°	
35	v. soluble	v. soluble	s. soluble	dec.		crystals.....
36	v. soluble	v. soluble	v. soluble	111°		quad. tab.
37					100-1°	[and need.
38					118-9°	
39	s. soluble	s. soluble	s. soluble	none	.....	long needles.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Hexamethyl benzene . . .	$C_6(CH_3)_6$ . . .	162.15	.....
2	Hexane (n.) . . .	$CH_3(CH_2)_4CH_3$ . . .	86.12	0.658 <sup>21</sup>
3	" . . .	$(CH_2)_5CH_3$ . . .	86.12	0.668 <sup>17</sup>
4	" . . .	$(CH_3CH_2)_2CH_3$ . . .	86.12	0.6765 <sup>2</sup>
5	Hexen(1)oic(6) acid . . .	$CH_2:CH(CH_2)_3CO_2H$ . . .	114.08	.....
6	Hexen(5)oic(6) " . . .	$CH_3(CH_2)_2CH:CH.CO_2H$ . . .	114.08	.....
7	Hexenyl alcohol . . .	$C_6H_{11}OH$ . . .	100.10	0.891 <sup>10</sup>
8	ether . . .	$(C_6H_{11})_2O$ . . .	182.18	.....
9	Hexoic aldehyde . . .	$CH_3(CH_2)_4CHO$ . . .	100.10	0.8335 <sup>20</sup>
10	Hexyl acetate (n.) . . .	$C_6H_{13}O_2$ . . .	144.13	0.8902 <sup>0</sup>
11	alcohol . . .	$CH_3(CH_2)_4CH_2OH$ . . .	102.12	0.8204 <sup>20</sup>
12	Hexylene (n.) . . .	$CH_3(CH_2)_3CH:CH_2$ . . .	84.10	0.6990 <sup>1</sup>
13	alcohol 2, 3 . . .	$CH_3(CH_2)_3CHOH.CH_2OH$ . . .	118.12	0.9669 <sup>0</sup>
14	Hexyl formate . . .	$HCO_2.C_6H_{13}$ . . .	130.12	0.898 <sup>0</sup>
15	Hippuric acid . . .	$C_6H_5CO.NHCH_2CO_2H$ . . .	179.11	.....
16	Homo-pyro-catechin . . .	$1:3:4CH_3.C_6H_3(OH)_2$ . . .	124.06	.....
17	Hydracrylic acid . . .	$OHCH_2.CH_2CO_2H$ . . .	90.05	.....
18	Hydrastin . . .	$C_{21}H_{21}NO_6$ . . .	383.21	.....
19	Hydrazo-benzene . . .	$C_6H_5NH.NHC_6H_5$ . . .	184.18	.....
20	benzoic acid (o.) . . .	$(CO_2H.C_6H_4NH)_2$ . . .	272.18	.....
21	" " (m.) . . .	$(CO_2H.C_6H_4NH)_2$ . . .	272.18	.....
22	" " (p.) . . .	$(CO_2H.C_6H_4NH)_2$ . . .	272.18	.....
23	toluene (o.) . . .	$(CH_3C_6H_4NH)_2$ . . .	212.21	.....
24	" (m.) . . .	$(CHC_6H_4NH)_2$ . . .	212.21	.....
25	" (p.) . . .	$(CH_3C_6H_4NH)_2$ . . .	212.21	0.957 <sup>15</sup>
26	Hydrindene (1, 2) . . .	$C_8H_4:C_2H_4:CH_2$ . . .	118.08	0.957 <sup>15</sup>
27	Hydrobenzoin . . .	$(C_6H_5CHOH)_2$ . . .	214.12	.....
28	Hydrocarbostyryl . . .	$C_9H_9NO$ . . .	147.11	.....
29	Hydrocinnamic acid . . .	$C_6H_5CH_2.CH_2CO_2H$ . . .	150.08	1.0711 <sup>40</sup>
30	aldehyde . . .	$C_6H_5(CH_2)_2CHO$ . . .	134.08	.....
31	Hydrocyanic acid . . .	$HCN$ . . .	27.05	0.6969 <sup>18</sup>
32	Hydronapthoquinone(1,2) . . .	$C_{10}H_6(OH)_2$ . . .	160.06	.....
33	" (1,4) . . .	$C_{10}H_6(OH)_2$ . . .	160.06	.....
34	Hydroquinone (p.) . . .	$C_6H_4(OH)_2$ . . .	110.05	1.326
35	dimethyl ether . . .	$C_6H_4(OCH_3)_2$ . . .	138.08	.....
36	ethyl ether . . .	$OH.C_6H_4.OC_2H_5$ . . .	138.08	.....
37	Hydroxy-anthraquinone (m.) . . .	$C_6H_4:(CO)_2:C_6H_3OH$ . . .	224.06	.....
38	benzalcohol (o.) . . .	$OH.C_6H_4.CH_2OH$ . . .	124.06	1.1613 <sup>25</sup>



Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1		0.2		164°	264°	rhombic/al.
2					69°	
3		soluble	soluble		58°	
4					64°	
5	s. soluble				202-4°	
6	s. soluble			32.7-3.1°	216-7° C.	needles/w.
7	v. soluble	∞	∞		137°	
8	insol.				116-8°	oil.
9					129° C.	
10					169.2°	
11	s. soluble	∞	∞		157° C.	
12					68-70°	
13	∞	soluble	soluble		207°	
14					153.6°	
15	0.16°	s. soluble	s. soluble	187.5°	decom.	trimet. pris.
16	v. soluble	v. soluble	v. soluble	51°	251-2°	
17					decomp.	syrup.
18	v. v. s. sol.	s. soluble	1.2	132°		glit. trimet. prisms
19	insol.	5 <sup>16</sup>		131°	decomp.	tablets. [al.
20		soluble		205°		leaf. or pris.
21	insol.	s. soluble	sol. alkali			imperf. cryst.
22	insol.	s. soluble	sol. KOH			sm. need./al.
23		soluble	soluble	165°	decomp.	leaflets.
24		soluble				
25		v. soluble	v. soluble	126°	decomp.	tab. or need.
26					176-6.5° C.	oil.
27	0.25 <sup>18</sup>	soluble		138°	300°+	moncl. tab./al.
28	v. v. s. sol.	soluble	soluble	163°		glit. pris./al.
29	0.6 <sup>20</sup>	v. soluble	soluble	48.7°	279.8°	{ moncl. pris.
30					208°	/al.
31	∞	∞	∞	-14°	26.1°	
32	sol. alkali			abt. 60°		leaflets.
33	mod. sol. hot	soluble	v. soluble	176°		long needles.
34	5.85 <sup>18</sup>	v. soluble	v. soluble	169°	sub.	hex. pris./w.
35	insol.		sol. bz.	55-6°	205°	large leaf./w.
36	s. soluble	v. soluble	v. soluble	66°	246-7°	thin leaflets.
37	v. v. s. sol.	mod. sol.	mod. sol.	302°	sub.	yel. leaf. or need./al.
38	6.7 <sup>22</sup>	v. sol.	v. sol., 1.95 bz. 18°	86°	sub. 100 up	rhomb. tab..

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
<b>Hydroxy-</b>				
1	benzalcohol (m.) . . .	$\text{OH.C}_6\text{H}_4.\text{CH}_2\text{OH}$ . . . . .	124.06	
2	" (p.) . . .	$\text{OH.C}_6\text{H}_4.\text{CH}_2\text{OH}$ . . . . .	124.06	
3	benzaldehyde (o.) . . .	$\text{OHC}_6\text{H}_4.\text{CHO}$ . . . . .	122.05	1.1731 <sup>13</sup>
4	" (m.) . . .	$\text{OHC}_6\text{H}_4.\text{CHO}$ . . . . .	122.05	
5	" (p.) . . .	$\text{OHC}_6\text{H}_4.\text{CHO}$ . . . . .	122.05	
6	benzamide (o.) . . . .	$\text{OHC}_6\text{H}_4.\text{CONH}_2$ . . . . .	137.10	
7	" (m.) . . . .	$\text{OHC}_6\text{H}_4.\text{CONH}_2$ . . . . .	137.10	
8	" (p.) . . . .	$\text{OHC}_6\text{H}_4.\text{CONH}_2$ . . . . .	137.10	
9	benzoic acid (o.) . . . .	$\text{OHC}_6\text{H}_4.\text{CO}_2\text{H}$ . . . . .	138.05	
10	" (m.) . . . .	$\text{OHC}_6\text{H}_4.\text{CO}_2\text{H}$ . . . . .	138.05	1.473 <sup>4</sup>
11	" (p.) . . . .	$\text{OHC}_6\text{H}_4.\text{CO}_2\text{H}$ . . . . .	138.05	1.468 <sup>4</sup>
12	caprylic acid (a) . . . .	$\text{CH}_3(\text{CH}_2)_5\text{CH}(\text{OH})\text{CO}_2\text{H}$ . . . . .	160.13	
13	citric acid . . . . .	$(\text{OH})_2\text{C}_2\text{H}_3(\text{CO}_2\text{H})_3$ . . . . .	208.06	
14	isophthalic acid (2) . . .	$\text{OHC}_6\text{H}_3(\text{CO}_2\text{H})_2 + \text{H}_2\text{O}$ . . . . .	200.07	
15	" (4) . . . .	$\text{OHC}_6\text{H}_3(\text{CO}_2\text{H})_2$ . . . . .	182.05	
16	" (5) . . . .	$\text{OHC}_6\text{H}_3(\text{CO}_2\text{H})_2$ . . . . .	182.05	
17	phthalic acid (3) . . . .	$\text{OHC}_6\text{H}_3(\text{CO}_2\text{H})_2$ . . . . .	182.05	
18	" (4) . . . .	$\text{OHC}_6\text{H}_3(\text{CO}_2\text{H})_2$ . . . . .	182.05	
19	" (2) . . . .	$\text{OHC}_6\text{H}_3(\text{CO}_2\text{H})_2$ . . . . .	182.05	
20	purpurin . . . . .	$\text{C}_{14}\text{H}_4\text{O}_2(\text{OH})_4$ . . . . .	272.06	
21	pyridine (a) . . . . .	$\text{OH.C}_5\text{H}_4\text{N}$ . . . . .	95.08	
22	" (b) . . . . .	$\text{OH.C}_5\text{H}_4\text{N}$ . . . . .	95.08	
23	" (c) . . . . .	$\text{OH.C}_5\text{H}_4\text{N} + \text{H}_2\text{O}$ . . . . .	113.10	
24	quinoline (bz. 1) . . . .	$\text{C}_8\text{H}_6\text{N.OH}$ . . . . .	145.04	
25	" (bz. 2) . . . .	$\text{C}_8\text{H}_6\text{N.OH}$ . . . . .	145.04	
26	" (bz. 3) . . . .	$\text{C}_8\text{H}_6\text{N.OH}$ . . . . .	145.04	
27	" (bz. 4) . . . .	$\text{C}_8\text{H}_6\text{N.OH}$ . . . . .	145.04	
28	" (pr. 2) . . . .	$\text{C}_8\text{H}_6\text{N.OH}$ . . . . .	145.04	
29	toluic acid (1: 2: 3) . . .	$\text{C}_6\text{H}_3(\text{CO}_2\text{H})(\text{CH}_3)\text{OH}$ . . . . .	152.06	
30	" (1: 2: 4) . . . .	$\text{C}_6\text{H}_3(\text{CO}_2\text{H})(\text{CH}_3)\text{OH} + \frac{1}{2}\text{H}_2\text{O}$ . . . . .	161.07	
31	" (1: 2: 5) . . . .	$\text{C}_6\text{H}_3(\text{CO}_2\text{H})(\text{CH}_3)\text{OH}$ . . . . .	152.06	
32	" (1: 2: 6) . . . .	$\text{C}_6\text{H}_3(\text{CO}_2\text{H})(\text{CH}_3)\text{OH}$ . . . . .	152.06	
33	" (1: 3: 2) . . . .	$\text{C}_6\text{H}_3(\text{CO}_2\text{H})(\text{CH}_3)\text{OH}$ . . . . .	152.06	
34	" (1: 3: 4) . . . .	$\text{C}_6\text{H}_3(\text{CO}_2\text{H})(\text{CH}_3)\text{OH} + \frac{1}{2}\text{H}_2\text{O}$ . . . . .	161.07	
35	" (1: 3: 5) . . . .	$\text{C}_6\text{H}_3(\text{CO}_2\text{H})(\text{CH}_3)\text{OH}$ . . . . .	152.06	
36	" (1: 4: 2) . . . .	$\text{C}_6\text{H}_3(\text{CO}_2\text{H})(\text{CH}_3)\text{OH}$ . . . . .	152.06	
37	" (1: 4: 3) . . . .	$\text{C}_6\text{H}_3(\text{CO}_2\text{H})(\text{CH}_3)\text{OH}$ . . . . .	152.06	
38	" (1: 3: 6) . . . .	$\text{C}_6\text{H}_3(\text{CO}_2\text{H})(\text{CH}_3)\text{OH}$ . . . . .	152.06	
39	Hyenic acid . . . . .	$\text{CH}_3(\text{CH}_2)_{22}\text{CO}_2\text{H}$ . . . . .	382.40	
40	Hypogaecic acid . . . . .	$\text{C}_{18}\text{H}_{28}\text{CO}_2\text{H}$ . . . . .	254.24	

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	v. sol. hot	v. soluble	v. soluble	67°	abt.300dec.	needles.....
2	soluble	soluble	soluble	110°	.....	fine needles..
3	v. s. sol.	∞	∞	-20°	196.5° C.	oil.....
4	mod. sol. hot	v. soluble	soluble	104°	240° C.	needles/w....
5	s. soluble	v. soluble	v. soluble	115-6°	sub. undec.	needles/w....
6	soluble	.....	.....	139.9° C.	270° dec.	yellowish leaf.
7	s. soluble	v. soluble	v. soluble	170.5° C.	.....	thin leaf./w..
8	s. soluble	v. soluble	s. soluble	162°	.....	needles.....
9	0.225 <sup>15</sup>	49.63 <sup>15</sup>	50.47 <sup>15</sup>	158° C.	sub.	fine need./w.
10	0.93 <sup>18</sup>	.....	.....	200°	dist.	warty n./w..
11	0.8 <sup>15</sup>	v. soluble	v. soluble	210°	.....	monoclinic/w
12	v. s. sol.	v. soluble	v. soluble	69.5°	.....	large plates..
13	v. soluble	v. soluble	v. soluble	.....	.....	syrup.....
14	0.14; 2.5 <sup>100</sup>	v. soluble	v. soluble	239°	.....	long need./w.
15	0.03 <sup>24</sup>	v. v. sol.	v. soluble	305-6°	.....	long needles..
16	0.06; 18 <sup>100</sup>	v. soluble	v. soluble	288° C.	.....	needles.....
17	20 <sup>17</sup>	v. soluble	v. soluble	→anhyd.	.....	short pris./w
18	3 <sup>10</sup>	v. soluble	mod. sol.	181° dec.	.....	rosettes/w....
19	s. soluble	v. soluble	mod. sol.	no m.p.	sub.	powder.....
20	v. s. sol.	v. s. soluble	sol. acetone	>275°	sub.	br. red./acet.
21	v. soluble	v. soluble	mod. sol.	106-7°	280-1°	fine need./w.
22	v. soluble	v. soluble	.....	129°	dist.	needles.....
23	100 <sup>15</sup>	v. soluble	v. s. sol.	anh.1485 C.	.....	moncl. pris. .
24	v. s. sol.	v. soluble	s. soluble	75-6°	266.6°C. <sup>752</sup>	prisms/dil. al.
25	s. soluble	v. soluble	.....	235-8°	sub.	prisms/al.
26	v. s. sol.	s. soluble	v. s. soluble	193°	>360°	small pris./al.
27	sol. alkali	.....	s. soluble	224°	.....	small leaflets.
28	v. s. sol.	v. soluble	v. soluble	199-200°	sub.	large pris./al.
29	mod. sol.	v. soluble	v. soluble	183°	.....	glit. need./w.
30	s. soluble	v. soluble	v. soluble	177-8°	.....	small need./w
31	s. soluble	v. soluble	v. soluble	172°	vol.in steam	large pris./w.
32	0.14 <sup>25</sup>	v. v. sol.	v. v. sol.	168°	.....	needles/w....
33	v. sol. hot	sol. chlo..	.....	163-4°	vol.in steam	long need./w.
34	sol. hot	v. soluble	v. soluble	172-3°	.....	needles/w....
35	mod. sol.	.....	.....	208°	sub.	tablets/w....
36	v. s. sol.	soluble	.....	177° C.	vol.in steam	moncl. pris/al
37	v. s. sol.	v. soluble	soluble	206-7° C.	sub.	long needles .
38	v. s. sol.	v. soluble	v. soluble	151°	vol.in steam	long need./w.
39	insol.	s. soluble	soluble	77-8°	.....	crystals.....
40	insol.	v. soluble	soluble	33°	236° <sup>15</sup>	needles.....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Indican	$C_{26}H_{31}NO_{17}$	629.30	
2	Indigo	$C_6H_4 < \begin{smallmatrix} CO \\ NH \end{smallmatrix} > C: C < \begin{smallmatrix} CO \\ NH \end{smallmatrix} >$ $C_6H_4$	262.16	1.35
3	dicarbonic acid	$C_{18}H_{10}N_2O_6$	350.16	
4	disulphonic acid	$C_{16}H_2N_2O_5(SO_3H)_2$	422.28	
5	purpurin	$C_{18}H_{10}N_2O_2$	262.16	
6	sulphonic acid	$C_{10}H_9N_2O_2.SO_3H$	342.22	
7	white	$C_{16}H_{12}N_2O_2$	264.18	
8	Indirubin	$C_{16}H_{10}N_2O_2$	262.16	
9	Indol	$C_8H_7N$	117.10	
10	carbonic acid (pr. 2)	$C_6H_7NO_2$	161.10	
11	Indoxyl	$C_8H_7NOH$	133.10	
12	Inosite (i.)	$C_6H_{12}O_8 + 2H_2O$	216.12	1.524 <sup>15</sup>
13	Inulin	$C_{12}H_{20}O_{10}$	324.16	1.349 dry
14	Iodo-acetic acid	$CH_2I.CO_2H$	186.00	
15	acetylene	$CH_2Cl$	151.98	
16	aniline (o.)	$IC_6H_4NH_2$	219.06	
17	" (m.)	$IC_6H_4NH_2$	219.06	
18	" (p.)	$IC_6H_4NH_2$	219.06	
19	benzamide (o.)	$IC_6H_4NH_2$	247.06	
20	" (m.)	$IC_6H_4NH_2$	247.06	
21	" (p.)	$IC_6H_4NH_2$	247.06	
22	benzene	$C_6H_6I$	204.01	1.8321 <sup>9</sup>
23	" (K.)	$C_6H_6I$	204.01	1.8285 <sup>11</sup>
24	ethylene	$CH_2:CHI$	154.00	2.08 <sup>0</sup>
25	propionic acid (α)	$CH_3.CHI.CO_2H$	200.01	
26	" " (β)	$CH_2I.CH_2.CO_2H$	200.01	
27	toluene (o.)	$IC_6H_4.CH_3$	218.03	1.697 <sup>20</sup>
28	" (m.)	$IC_6H_4.CH_3$	218.03	1.698 <sup>20</sup>
29	" (p.)	$IC_6H_4.CH_3$	218.03	
30	Iodoform	$CHI_3$	393.92	4.09
31	Iodobenzene	$C_6H_5IO$	220.01	
32	Iodoxybenzene	$C_6H_5IO_2$	236.01	
33	Isatane	$C_{22}H_{26}N_4O_6$	562.37	
34	Isatine	$C_6H_4 < \begin{smallmatrix} CO \\ N \end{smallmatrix} > COH$	147.08	
35	Isatine chloride	$C_5H_4ONCl$	165.52	
36	Isatinic acid	$NH_2.C_6H_4.CO.CO_2H$	165.10	

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	v. soluble	v. soluble	.....	.....	dec.	brown syrup.
2	insol.	insol.	insol.	.....	sub.	blue cryst. aniline
3	sol. H <sub>2</sub> SO <sub>4</sub>	insol.	insol.	.....	.....	deep blue pow
4	v. soluble	v. soluble	.....	.....	.....	blue amorph.
5	insol.	soluble	soluble	.....	sub.	choc. need. . .
6	soluble	soluble	.....	.....	dec. 200°	purple . . . . .
7	insol.	soluble	soluble	.....	.....	white mass. .
8	sol. gl. acet.	mod. sol.	.....	.....	sub.	choc. need./an
9	mod. sol. hot	v. soluble	v. soluble	52°	253-4°	leaflets. . . . .
10	mod. sol. hot	v. soluble	v. soluble	203°	.....	fine need./w.
11	sol. alkali	.....	.....	.....	not vol.	oil. . . . .
12	10 <sup>12</sup>	v. s. sol.	insol.	225° C.	319° in vac.	moncl./w. . . .
13	0.02 <sup>14</sup>	v. s. sol.	.....	178° dec.	dec. 160°	v. fine cryst. .
14	v. soluble	v. soluble	v. soluble	82°	.....	rhomb. tab. . .
15	mod. sol.	.....	.....	.....	29-32°	.....
16	v. s. sol.	v. soluble	.....	56.5°	.....	fine needles .
17	insol.	soluble	.....	25-7°	.....	leaflets. . . . .
18	insol.	soluble	.....	63°	.....	need. or pris. .
19	soluble	.....	.....	183.6° C.	.....	needles. . . . .
20	s. soluble	.....	.....	186.5° C.	.....	.....
21	v. s. sol.	.....	.....	217.6° C.	.....	.....
22	insol.	soluble	.....	-29.8°	188.4 <sup>0756</sup>	.....
23	insol.	soluble	∞	-28-9°	186.5-8.5°	usually red . .
24	.....	.....	.....	.....	56°	.....
25	s. soluble	soluble	soluble	.....	.....	oil. . . . .
26	v. s. sol.	v. soluble	v. soluble	82°	.....	leaflets. . . . .
27	insol.	.....	.....	.....	211°	.....
28	.....	.....	.....	.....	204°	.....
29	insol.	.....	.....	35	211.5°	leaflets. [tab.
30	insol.	soluble	soluble	119°	sub.	yel. hexag.
31	mod. sol.	mod. sol.	insol.	.....	explodes	amorphous . .
32	v. v. s. sol.	v. sol. bz.	v. sol. chlo.	.....	expl. 227-30°	long need./w.
33	insol.	soluble	soluble	.....	.....	warts. . . . .
34	s. soluble	soluble	s. soluble	200-1°	sub.	red. moncl. prisms
35	insol.	soluble	v. soluble	180° dec.	.....	brown need.
36	s. soluble	.....	.....	.....	dec.	crystals. . . . .

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1. (A).
1	Isatoic acid.....	$C_6H_5NO_3$ .....	163.08	.....
2	Isatoxime.....	$C_6H_5N_2O_2$ .....	162.13	.....
3	Isatronic acid.....	$C_{17}H_{14}O_2$ .....	250.12	.....
4	Isatyd.....	$C_{16}H_{12}N_2O_4$ .....	296.18	.....
5	Isoamyl-acetate.....	$C_9H_{18}O_2$ .....	130.12	0.8762 <sup>†</sup>
6	“ “ (K.).....	$C_9H_{18}O_2$ .....	130.12	0.867 <sup>††</sup>
7	alcohol.....	$(CH_3)_2CH.(CH_2)_2OH$ .....	88.10	0.8104 <sup>†</sup>
8	“ (K.).....	$(CH_3)_2CH.(CH_2)_2OH$ .....	88.10	0.810— .812 <sup>††</sup>
9	“ (sec.).....	$(CH_3)_2CH.CH(OH).CH_3$ .....	88.10	0.819 <sup>†</sup>
10	benzene.....	$C_6H_6$ .....	148.13	0.885 <sup>18</sup>
11	benzoate.....	$C_6H_5CO_2.C_6H_{11}$ .....	192.13	0.9925 <sup>19</sup>
12	bromide.....	$C_6H_{11}Br$ .....	151.05	1.2058 <sup>22</sup>
13	butyrate.....	$C_4H_7CO_2.C_6H_{11}$ .....	158.15	0.8823 <sup>‡</sup>
14	chloride.....	$(CH_3)_2CH(CH_2)_2Cl$ .....	106.54	0.8625 <sup>25</sup>
15	cyanide.....	$(CH_3)_2CH(CH_2)_2CN$ .....	97.13	0.8061 <sup>20</sup>
16	formate.....	$HCO_2.C_6H_{11}$ .....	116.10	0.8944 <sup>‡</sup>
17	iodide.....	$(CH_3)_2CH(CH_2)_2I$ .....	198.06	1.4734 <sup>20</sup>
18	isocyanide.....	$(CH_3)_2CH(CH_2)_2NC$ .....	97.13	<1
19	isovaleriate.....	$C_6H_5O_2.C_5H_{11}$ .....	172.16	0.8700 <sup>0</sup>
20	“ (K.).....	$C_6H_5O_2.C_5H_{11}$ .....	172.16	0.855 <sup>††</sup>
21	mustard oil.....	$C_6H_{11}N.CS$ .....	129.19	0.9419 <sup>17</sup>
22	nitrate.....	$C_6H_{11}NO_3$ .....	133.13	1.000 <sup>7-8</sup>
23	nitrite.....	$C_6H_{11}NO_2$ .....	117.13	0.880 <sup>15</sup>
24	phenol (p.).....	$C_6H_{11}.C_6H_5OH$ .....	164.13	.....
25	phenylketone.....	$C_6H_{11}.CO.C_6H_5$ .....	176.13	.....
26	propionate.....	$C_3H_7CO_2.C_6H_{11}$ .....	144.13	0.8877 <sup>‡</sup>
27	sulphide.....	$(C_6H_{11})_2S$ .....	174.24	0.843 <sup>†</sup>
28	Isoanthracene.....	$C_{14}H_{10}$ .....	178.08	.....
29	Isoanthraquinone.....	$C_{14}H_8O_2$ .....	208.06	.....
30	Isobutane.....	$(CH_3)_2CHCH_3$ .....	58.08	.....
31	Isobutyl-acetate.....	$C_9H_{18}O_2$ .....	116.10	0.8921 <sup>‡</sup>
32	alcohol.....	$(CH_3)_2CH.CH_2OH$ .....	74.08	0.8003 <sup>18</sup>
33	“.....	$(CH_3)_2CH.CH_2OH$ .....	74.08	0.7995 <sup>††</sup>
34	aldehyde.....	$(CH_3)_2CH.CHO$ .....	72.06	0.7938 <sup>†</sup>
35	amine.....	$(CH_3)_2CHCH_2NH_2$ .....	73.13	0.7363
36	benzene.....	$C_6H_6$ .....	134.12	0.8578 <sup>15</sup>
37	benzoate.....	$C_6H_5CO.C_6H_5$ .....	178.12	1.0018 <sup>15</sup>
38	butyrate.....	$C_4H_7CO_2.C_6H_5$ .....	144.13	0.8876 <sup>‡</sup>
39	chloride.....	$(CH_3)_2CH_2CH_2Cl$ .....	92.52	0.8836 <sup>15</sup>
40	cyanide.....	$(CH_3)_2CHCH_2CN$ .....	83.11	0.8069 <sup>20</sup>

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	sol. acetone	s. soluble	s. soluble	230° dec.	.....	small need./a.
2	v. s. sol.	soluble	s. KOH	202° dec.	.....	long yel. need.
3	v. v. s. sol.	v. soluble	v. soluble	156-7°	dec.	leaflets/dil. al.
4	v. v. s. sol.	v. s. sol.	.....	237-7.5°	dec.	micro. cryst..
5	s. soluble	∞	∞	.....	139°	.....
6	v. v. s. sol.	∞	∞	.....	138-42°	colorless ....
7	3.29 <sup>22</sup>	∞	∞	-134°	131.6°	.....
8	2.5 <sup>26</sup>	∞	∞	.....	130-2°	colorless ....
9	.....	.....	.....	.....	112.5°	.....
10	.....	.....	.....	.....	193°	.....
11	.....	.....	.....	.....	261-2°	.....
12	insol.	soluble	.....	.....	118.6°	.....
13	s. soluble	v. soluble	v. soluble	.....	178.6°	.....
14	insol.	soluble	.....	.....	100.9° C.	.....
15	.....	.....	.....	.....	155°	.....
16	.....	.....	.....	.....	123.3°	.....
17	.....	soluble	.....	.....	148.2° C.	.....
18	insol.	soluble	.....	.....	137°	.....
19	.....	.....	.....	.....	194°	.....
20	v. v. s. sol.	soluble	∞	.....	191-3°	colorless ....
21	.....	.....	.....	.....	183-4°	.....
22	.....	.....	.....	.....	147-8°	.....
23	insol.	soluble	soluble	.....	99°	.....
24	v. s. sol. hot	.....	.....	92-3°	255°	long need./w.
25	.....	.....	.....	.....	241.5-2.5°	.....
26	.....	.....	.....	.....	160.2°	.....
27	.....	.....	.....	.....	216°	.....
28	.....	s. soluble	s. soluble	133.5-4.5°	.....	pearly leaflets
29	.....	.....	.....	211-2°	.....	pale yel. need.
30	.....	.....	.....	.....	-11.5°	.....
31	s. soluble	∞	∞	.....	116.3	.....
32	soluble	∞	∞	.....	108.4°	.....
33	9.55 <sup>18</sup>	∞	∞	.....	105.5-6.5°	colorless ....
34	9.0	.....	.....	.....	63-4°	.....
35	∞	.....	.....	.....	68-9°	.....
36	.....	.....	.....	.....	170-0.5° C.	.....
37	.....	.....	.....	.....	237°	.....
38	.....	.....	.....	.....	156.9°	.....
39	.....	.....	.....	.....	68.5°	.....
40	s. soluble	.....	.....	.....	129°	.....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
<b>Isobutyl-</b>				
1	ether.....	$(C_4H_9)_2O$ .....	146.15	0.7616 <sup>15</sup>
2	formate.....	$HCO_2.C_4H_9$ .....	102.08	0.9049 <sup>‡</sup>
3	iodide.....	$(CH_3)_2CH.CH_2I$ .....	184.04	1.6138 <sup>15</sup>
4	ketone.....	$(C_4H_9)_2CO$ .....	142.15	0.833 <sup>30</sup>
5	mustard oil.....	$C_4H_9.NCS$ .....	115.17	0.9638 <sup>14</sup>
6	phenylketone.....	$C_6H_5.CO.C_4H_9$ .....	162.11	0.993 <sup>17</sup>
7	Isobutyric acid.....	$(CH_3)_2CH.CO_2H$ .....	88.06	0.9487 <sup>‡</sup>
8	“ “ (K.).....	$(CH_3)_2CH.CO_2H$ .....	88.06	0.946 <sup>‡</sup>
9	anhydride.....	$[(CH_3)_2CHCO]_2O$ .....	158.12	0.9574 <sup>16</sup>
10	Isocaproic acid.....	$(CH_3)_2CH.(CH_2)_3.CO_2H$ .....	116.10	0.925 <sup>20</sup>
11	Isocinchromeronic ac.....	$2: 5, C_8H_5N(CO_2H)_2 + H_2O$ .....	185.10	.....
12	Isocinnamic acid.....	$C_6H_5.CH:CH.CO_2H$ .....	148.06	.....
13	Isocitric acid.....	$C_6H_8O_7 + H_2O$ .....	210.08	.....
14	Isocymene (m.).....	$CH_3.C_6H_5.CH(CH_3)_2$ .....	134.12	0.862 <sup>20</sup>
15	Isocrotonic acid.....	$CH_3.CH:HC.CO_2H$ .....	86.05	1.0312 <sup>‡</sup>
16	Isodulcite.....	$CH_3(CHOH)_2CHO + H_2O$ .....	182.12	1.4708 <sup>‡</sup>
17	Isodurene.....	$1: 2: 3: 5C_6H_2(CH_3)_4$ .....	134.12	0.8961 <sup>‡</sup>
18	Isoengenol 1: 3: 4.....	$CH_3.CH:CHC_6H_5(OH)_2$ .....	164.10	1.080 <sup>18</sup>
19	Isoheptane.....	$(CH_3)_2CH(CH_2)_3CH_3$ .....	100.13	0.6819 <sup>17</sup>
20	Isoheptoic acid.....	$(CH_3)_2CH(CH_2)_3CO_2H$ .....	130.12	0.9122 <sup>19</sup>
21	Isohydrobenzoin.....	$C_{14}H_{12}(OH)_2$ .....	214.12	.....
22	Isohydronaphthoquinone.....	$C_{10}H_8O_2$ .....	160.06	.....
23	Isohexane.....	$(CH_3)_2CH(CH_2)_2CH_3$ .....	86.12	0.677 <sup>9</sup>
24	Isohexylaldehyde.....	$(CH_3)_2CH(CH_2)_2CHO$ .....	100.10	.....
25	Isomalic acid.....	$C_4H_6O_5$ .....	134.05	.....
26	Isomannid.....	$C_6H_{10}O_4$ .....	146.08	.....
27	Isonicotinic acid.....	$C_6H_4N.CO_2H$ .....	123.08	.....
28	Isopentane.....	$(CH_3)_2CHCH_2CH_3$ .....	72.10	0.6282 <sup>‡</sup>
29	Isophthalic acid (m.).....	$C_6H_4(CO_2H)_2$ .....	166.05	.....
30	aldehyde (m.).....	$C_6H_4(CHO)_2$ .....	134.05	.....
31	nitril (m.).....	$C_6H_4(CN)_2$ .....	128.11	.....
32	Isoprene.....	$CH_2:CH.C(CH_3):CH_2$ .....	68.06	0.6823 <sup>20</sup>
33	Isopropyl-acetate.....	$CH_3CO_2CH(CH_3)_2$ .....	102.08	0.9166 <sup>9</sup>
34	acetylene.....	$(CH_3)_2CH.C:CH$ .....	68.06	0.6854 <sup>9</sup>
35	alcohol.....	$CH_3CH(OH).CH_3$ .....	60.06	0.789 <sup>‡</sup>
36	“ (K.).....	$CH_3CH(OH).CH_3$ .....	60.06	0.796 <sup>‡</sup>
37	amine.....	$(CH_3)_3CHNH_2$ .....	59.11	0.690 <sup>18</sup>
38	benzoate.....	$C_6H_5CO_2CH(CH_3)_2$ .....	164.10	1.013 <sup>25</sup>
39	benzoic acid (o.).....	$(CH_3)_2CH.C_6H_4.CO_2H$ .....	164.10	.....
40	cyanide.....	$(CH_3)_2CHCN$ .....	69.10	.....



Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	soluble	∞	∞	.....	122-2.5°	.....
2	1.01	.....	.....	.....	98.5°	.....
3	.....	.....	.....	.....	120.0° C.	.....
4	insol.	.....	.....	.....	181-2°	.....
5	.....	.....	.....	.....	162°	.....
6	.....	.....	.....	.....	225-6°	.....
7	20 <sup>30</sup>	∞	∞	-79°	155.5°	.....
8	∞	∞	∞	-79°	153-4.5°	.....
9	insol.	.....	.....	.....	182.5°	.....
10	s. soluble	soluble	soluble	> -18°	199.7 <sup>0732</sup>	.....
11	v. v. s. sol.	v. s. sol.	v. s. sol.	236°	sub.	v. sm. cryst.
12	s. soluble	v. soluble	v. soluble	57°	265° dec.	moncl. pris.
13	v. s. sol.	v. s. sol.	v. s. sol.	→anh. 100°	.....	prisms. [lig.
14	.....	.....	.....	< -25°	175-6°	.....
15	40	.....	.....	15.5°	171.9° dec.	long needles.
16	57.11 <sup>19</sup>	54 meth. al.	.....	92-3°	.....	large mon./w.
17	.....	soluble	.....	low	195-7°	.....
18	.....	soluble	.....	abt. -10°	258-62°	.....
19	.....	soluble	soluble	.....	90.3°	.....
20	.....	.....	.....	.....	209°	.....
21	0.2 <sup>16</sup>	v. soluble	v. soluble	119.5°	.....	mon. pris./w.
22	.....	soluble	soluble	unstable	.....	small needles
23	.....	soluble	soluble	.....	62°	.....
24	s. soluble	soluble	.....	.....	121 <sup>0743</sup>	.....
25	v. soluble	v. soluble	v. soluble	abt. 140° d.	dec. 160°	monoclinic...
26	v. soluble	mod. sol.	insol.	87°	274°	monoclinic...
27	s. soluble	v. v. s. sol.	v. s. sol.	309.5°	.....	needles.....
28	.....	.....	.....	< -24°	30.5-1.5°	.....
29	0.013 <sup>25</sup>	mod. sol.	.....	< 300°	sub.	long need./w.
30	.....	.....	.....	89-90°	.....	long needles
31	s. sol. hot	sol. hot	.....	156°	.....	fine needles.
32	.....	.....	.....	.....	35.8°	.....
33	s. soluble	∞	∞	.....	90-3°	.....
34	.....	.....	.....	.....	28-9 <sup>0761</sup>	.....
35	∞	∞	∞	.....	82.85° C.	.....
36	∞	∞	∞	.....	81-3°	.....
37	∞	.....	.....	.....	31.5 <sup>0743</sup>	.....
38	.....	.....	.....	.....	218° dec.	.....
39	sol. hot	.....	.....	51°	.....	prisms/w....
40	.....	.....	.....	.....	107-8°	.....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Isopropyl-ether (K.) . . . . .	$[(CH_3)_2CH]_2O$ . . . . .	102.12	0.7247 <sup>21</sup>
2	ethylene . . . . .	$(CH_2)_2CH.CH.CH_2$ . . . . .	70.08	.....
3	hexyl ketone . . . . .	$C_6H_{13}.CO.C_6H_{13}$ . . . . .	156.16	0.841 <sup>17</sup>
4	isocyanide . . . . .	$(CH_3)_2CH.NC$ . . . . .	69.09	0.7596 <sup>9</sup>
5	ketone . . . . .	$[(CH_3)_2CH]_2CO$ . . . . .	114.12	0.8062 <sup>9</sup>
6	phenylketone . . . . .	$(CH_3)_2CH.CO.C_6H_5$ . . . . .	148.10	.....
7	pyridine (α) . . . . .	$(CH_3)_2CH.C_5H_4N$ . . . . .	121.13	0.9342 <sup>9</sup>
8	“ (γ) . . . . .	$(CH_3)_2CH.C_5H_4N$ . . . . .	121.13	0.9439 <sup>9</sup>
9	sulphide . . . . .	$[(CH_3)_2CH]_2S$ . . . . .	118.18	.....
10	Isoquinoline . . . . .	$(2)C_8H_7N$ . . . . .	129.10	1.0986 <sup>9</sup>
11	Isosaccharic acid . . . . .	$C_6H_{10}O_8$ . . . . .	210.08	.....
12	Isosuccinic acid . . . . .	$CH_3CH(CO_2H)_2$ . . . . .	118.05	1.455
13	Isovaleric acid . . . . .	$(CH_3)_2CHCH_2CO_2H$ . . . . .	102.08	0.931 <sup>20</sup>
14	“ “ (K.) . . . . .	$(CH_3)_2CHCH_2CO_2H$ . . . . .	102.08	0.929 <sup>21</sup>
15	aldehyde . . . . .	$(CH_3)_2CH.CH_2CHO$ . . . . .	86.08	0.8040 <sup>15</sup>
16	amide . . . . .	$(CH_3)_2CH.CH_2CONH_2$ . . . . .	101.13	.....
17	Itaconic acid . . . . .	$CH_2.C(CO_2H).CH_2CO_2H$ . . . . .	130.05	1.573-1.632
18	Ketobutyric acid . . . . .	$CH_3CH_2.CO.CO_2H$ . . . . .	102.05	1.200 <sup>17</sup>
19	Ketoheptamethylene . . . . .	$CO(CH_2)_6$ . . . . .	112.10	0.9685 <sup>9</sup>
20	Ketopentamethylene . . . . .	$CO(CH_2)_4$ . . . . .	84.06	0.9416 <sup>9</sup>
21	Lactamide . . . . .	$CH_3.CHOH.CONH_2$ . . . . .	89.10	.....
22	Lactic acid (i.) . . . . .	$CH_3.CHOH.CO_2H$ . . . . .	90.05	1.2485 <sup>9</sup>
23	anhydride . . . . .	$C_6H_{10}O_5$ . . . . .	162.08	.....
24	Lactid . . . . .	$C_6H_8O_4$ . . . . .	144.06	.....
25	Lactyl urea . . . . .	$C_4H_8N_2O_2 + H_2O$ . . . . .	131.14	.....
26	Laevulin . . . . .	$C_6H_{10}O_5$ at 100° . . . . .	162.08	.....
27	Laevulinic acid . . . . .	$CH_3.CO.(CH_2)_2.CO_2H$ . . . . .	116.06	1.135 <sup>15</sup>
28	aldehyde . . . . .	$CH_3.CO.(CH_2)_2CHO$ . . . . .	100.06	1.0156 <sup>16</sup>
29	Lauric acid . . . . .	$C_{11}H_{23}.CO_2H$ . . . . .	200.20	0.883 <sup>20</sup>
30	aldehyde . . . . .	$C_{11}H_{23}.CHO$ . . . . .	172.20	.....
31	Lead tetraethyl . . . . .	$Pb(C_2H_5)_4$ . . . . .	322.96	1.62
32	tetramethyl . . . . .	$Pb(CH_3)_4$ . . . . .	267.00	2.034 <sup>9</sup>
33	Lecithin (protagon) . . . . .	$C_{42}H_{84}NPO_9$ . . . . .	777.71	.....
34	Lepidine . . . . .	$py.4, C_9H_6N.CH_3$ . . . . .	143.11	1.0862 <sup>20</sup>
35	Leucine . . . . .	$CH_3(CH_2)_3CH(NH_2)CO_2H$ . . . . .	131.15	1.293 <sup>18</sup>
36	Leucinic acid . . . . .	$CH_3(CH_2)_3CH(OH).CO_2H$ . . . . .	132.10	.....
37	Leukaniline . . . . .	$(NH_2.C_6H_4)_2CHC_6H_3(NH_2)$ . . . . .	303.29	.....
38	“ (o.) . . . . .	$CH_3$ $CH(C_6H_4NH_2)_3$ . . . . .	289.28	.....
39	“ (p.) . . . . .	$CH(C_6H_4NH_2)_3$ . . . . .	289.28	.....

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1					69° C.	
2					21.1–1.3°	
3					200–10°	
4					87°	
5					123.7°	
6					217°	
7	s. soluble				158–9°	
8					177–8°	
9	insol.	soluble	soluble		120.5 <sup>0763</sup>	
10				24.6°	240°	
11	v. soluble	v. soluble	s. soluble	185°		rhombic....
12	44.3°	v. sol.	v. sol.	135° dec.	sub.	prisms....
13	{ 91.5 <sup>50</sup> 4.2 <sup>20</sup>	∞	∞	–51°	176.3° C.	
14	s. soluble	∞	∞	–51°	173–6°	
15	s. soluble	soluble	soluble	–51°	92.5°	
16	soluble	soluble	soluble	126–7°	230–2°	
17	8.3 <sup>20</sup>	25 <sup>15</sup>	s. soluble	161° dec.	not in steam	rhombic....
18					78 <sup>025</sup>	oil....
19					180°	oil....
20					130–0.5° C.	
21	v. soluble	v. soluble		74°		crystals....
22	∞	∞	s. soluble	< –24°	83 <sup>01</sup> mm	syrup....
23	v. s. sol.	v. soluble	v. soluble	dec. 250–60		amorphous..
24	v. s. sol.	v. s. sol.		124.5°	255°	moncl.tab./al
25	v. soluble	v. soluble	v. v. s. sol.	anhy. 145°		rhomb. prism
26	deliq.	s. soluble	insol.	140–5° dec.		amorphous..
27	∞	v. soluble	v. soluble	32.5–3°	239°	leaflets....
28	∞	∞	∞	< –21°	186–8° dec.	
29	insol.	soluble	soluble	43.6°	225 <sup>0100</sup>	needles/al....
30				44.5°	184–5 <sup>0100</sup>	leaflets....
31	insol.				200°	
32					110°	
33	insol.	soluble	soluble		dec.	waxy....
34	insol.	∞	∞	< 0°	261–3°	
35	2.2 <sup>18</sup>	0.06 <sup>17</sup>		sub. 170°	dec.	leaflets....
36	v. soluble	v. soluble	v. soluble	73°	sub. 100° +	pris. or need..
37	s. sol. hot	v. soluble	s. soluble	100°		sm. cryst./w.
38		soluble		165°		brown cryst.
39		soluble		148°		leaflets [al.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Leukaurine .....	$\text{CH}(\text{C}_6\text{H}_4\text{OH})_2$ .....	292.13 .....	
2	Linoleic acid .....	$\text{C}_{18}\text{H}_{32}\text{O}_2$ .....	252.23 .....	0.9206 <sup>14</sup>
3	Lophin .....	$\text{C}_{21}\text{H}_{16}\text{N}_2$ .....	296.21 .....	
4	Lutidene (α) .....	$(\text{CH}_2)_2\text{C}_6\text{H}_3\text{N}$ .....	107.11 .....	0.9467 <sup>0</sup>
5	" (2, 4) .....	$(\text{CH}_2)_2\text{C}_6\text{H}_3\text{N}$ .....	107.11 .....	0.9493 <sup>†</sup>
6	" (2, 6) .....	$(\text{CH}_2)_2\text{C}_6\text{H}_3\text{N}$ .....	107.11 .....	0.9420 <sup>0</sup>
7	" (3, 4) .....	$(\text{CH}_2)_2\text{C}_6\text{H}_3\text{N}$ .....	107.11 .....	
8	Lutidinic acid .....	$\text{C}_8\text{H}_7\text{N}(\text{CO}_2\text{H})_2 + \text{H}_2\text{O}$ .....	185.10 .....	
9	Maleic acid .....	$\text{CO}_2\text{H}.\text{CH}:\text{CH}.\text{CO}_2\text{H}$ .....	116.03 .....	1.590
10	anhydride .....	$\text{C}_4\text{H}_2\text{O}_3$ .....	98.02 .....	
11	Malic acid (i.) .....	$\text{CO}_2\text{H}.\text{CH}_2.\text{CHOH}.\text{CO}_2\text{H}$ .....	134.04 .....	1.601 <sup>‡</sup>
12	" " (l.) .....	$\text{CO}_2\text{H}.\text{CH}_2.\text{CHOH}.\text{CO}_2\text{H}$ .....	134.04 .....	1.559 <sup>0</sup>
13	Malonic acid .....	$\text{CO}_2\text{H}.\text{CH}_2.\text{CO}_2\text{H}$ .....	104.03 .....	
14	" " (K.) .....	$\text{CO}_2\text{H}.\text{CH}_2.\text{CO}_2\text{H}$ .....	104.03 .....	
15	Maltose .....	$\text{C}_{12}\text{H}_{22}\text{O}_{11} + \text{H}_2\text{O}$ .....	360.19 .....	1.540 <sup>17</sup>
16	Mandelic acid .....	$\text{C}_6\text{H}_5.\text{CHOH}.\text{CO}_2\text{H}$ .....	152.06 .....	1.361 <sup>4</sup>
17	Mannid .....	$\text{C}_6\text{H}_{10}\text{O}_4$ .....	146.08 .....	
18	mannite (d.) .....	$\text{CH}_2\text{OH}(\text{CHOH})_4\text{CH}_2\text{OH}$ .....	182.12 .....	1.521 <sup>18</sup>
19	hexanitrate .....	$\text{CH}_2\text{NO}_3(\text{CHNO}_3)_4$ .....	452.30 .....	1.604 <sup>0</sup>
20	Mannoheptite .....	$\text{C}_7\text{H}_{10}\text{O}_7$ .....	212.13 .....	
21	Mannoheptose (d.) .....	$\text{C}_6\text{H}_7(\text{OH})_6\text{CHO}$ .....	210.12 .....	
22	Mannose (d.) .....	$\text{C}_6\text{H}_{12}\text{O}$ .....	180.10 .....	
23	Margaric acid .....	$\text{C}_{16}\text{H}_{33}\text{CO}_2\text{H}$ .....	270.27 .....	
24	Meconic acid .....	$\text{OHC}_2\text{HO}_2(\text{CO}_2\text{H})_2 + 3\text{H}_2\text{O}$ .....	254.08 .....	
25	Meconine .....	$\text{C}_{10}\text{H}_{10}\text{O}_4$ .....	194.08 .....	
26	Melam .....	$\text{C}_6\text{H}_8\text{N}_4$ .....	235.51 .....	
27	Melamine .....	$(\text{CN}.\text{NH}_2)_3$ .....	126.29 .....	
28	Melene .....	$\text{C}_{30}\text{H}_{60}$ .....	420.48 .....	0.89
29	Melissic acid .....	$\text{C}_{26}\text{H}_{50}\text{CO}_2\text{H}$ .....	452.48 .....	
30	Mellitic .....	$\text{C}_6(\text{CO}_2\text{H})_6$ .....	342.05 .....	
31	Menthon (l.) .....	$\text{C}_{10}\text{H}_{16}\text{O}$ .....	154.15 .....	0.8972 <sup>20</sup>
32	Mercuric cyanide .....	$\text{Hg}(\text{CN})_2$ .....	252.08 .....	4.0026 <sup>22</sup>
33	mercaptide .....	$(\text{C}_2\text{H}_5\text{S})_2\text{Hg}$ .....	322.20 .....	

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	s. soluble	v. soluble	sol. acet.	.....	.....	white pris. /acet.
2	insol.	.....	.....	< -18°	.....	yellow oil....
3	insol.	0.88 <sup>21</sup>	0.32 <sup>20</sup>	275°	.....	needles.....
4	25; less hot	.....	.....	.....	156°	.....
5	20; less hot	.....	.....	.....	157°	.....
6	∞ cold; less hot	.....	.....	.....	142-3°	.....
7	.....	.....	.....	.....	163.5-4.5	.....
8	mod. sol.	soluble	insol.	239-40°	.....	tab. or leaf...
9	50 <sup>10</sup>	soluble	soluble	130°	dec.	moncl. prisms
10	.....	.....	.....	60°	202° C.	trimetric....
11	soluble	.....	.....	130-1°	.....	.....
12	deliq.	s. soluble	s. soluble	100°	decomp.	needles.....
13	73.5 <sup>20</sup> ; 102.3 <sup>65</sup>	soluble	8.0 <sup>15</sup>	132°	decomp.	triclinic....
14	139.37 <sup>15</sup>	soluble	soluble	132-3° dec	.....	triclin. leaf...
15	soluble	s. soluble	.....	.....	.....	fine needles..
16	15.97 <sup>15</sup>	soluble	soluble	118°	dec.	large rhombic
17	v. soluble	v. soluble	.....	.....	297-317°	syrup.....
18	15.6 <sup>18</sup>	0.07 <sup>14</sup>	insol.	166°	290-5 <sup>3</sup> -3.5	rhombic pris.
19	insol.	2.9 <sup>13</sup>	4°	112-3°	exp. 120°	needles.....
20	6.3 <sup>14</sup>	v. s. sol.	.....	188° C.	.....	small needles
21	v. soluble	s. soluble	.....	134-5° C.	.....	v. fine need. /al.
22	248 <sup>17</sup>	0.4 <sup>17.5</sup> abs	insol.	132°	.....	rhombic/al. .
23	insol.	soluble	soluble	59.9°	227° <sup>100</sup>	crystals. ....
24	s. sol.; 25 <sup>100</sup>	v. sol.	s. soluble	.....	.....	rhomb. tab
25	0.14; 4.5 <sup>100</sup>	.....	.....	102-2.5°	sub.	glit. needles..
26	insol.	sol. KOH	.....	.....	.....	orange powd.
27	s. soluble	s. soluble	insol.	.....	.....	monoclinic...
28	.....	0.13; 3.6 <sup>78</sup> abs.	.....	62°	370-80°	crystals ....
29	insol.	v. s. sol.	v. s. sol.	91°	.....	silky scales..
30	v. v. sol.	soluble	sol. H <sub>2</sub> SO <sub>4</sub>	286-8°	dec.	fine silky nee.
31	insol.	∞	∞ CS <sub>2</sub> & bz.	.....	206.3° C.	.....
32	mod. sol.	10.1 <sup>19</sup>	44.2 <sup>19</sup> wood al.	dec. 320- 400°	.....	quad. prisms.
33	.....	v. s. sol; 8 <sup>78</sup>	.....	76-7°	dec.	leaflets/al....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Mercuric ethyl. ....	$\text{Hg}(\text{C}_2\text{H}_5)_2$ . . . . .	258.08	2.444
2	fulminate. ....	$\text{C}_2\text{N}_2\text{HgO}_2 + \frac{1}{2}\text{H}_2\text{O}$ . . . . .	293.09	44.42 anhy.
3	methyl. ....	$\text{Hg}(\text{CH}_3)_2$ . . . . .	230.05	3.069
4	naphthyl. ....	$\text{Hg}(\text{C}_{10}\text{H}_7)_2$ . . . . .	454.12	1.929
5	phenyl. ....	$\text{Hg}(\text{C}_6\text{H}_5)_2$ . . . . .	354.08	2.318
6	Mesaconic acid. ....	$\text{CH}_3(\text{CO}_2\text{H})\text{C}:\text{CHCO}_2\text{H}$ . . . . .	130.05	.....
7	Mesitol 1: 3: 5: 2. ....	$(\text{CH}_3)_3\text{C}_6\text{H}_2\text{OH}$ . . . . .	136.10	.....
8	Mesitylene 1: 3: 5. ....	$\text{C}_6\text{H}_3(\text{CH}_3)_3$ . . . . .	120.10	0.8694 <sup>†</sup>
9	Mesitylinic acid. ....	$(\text{CH}_3)_3\text{C}_6\text{H}_2\text{CO}_2\text{H}$ . . . . .	150.08	.....
10	Mesityl oxide. ....	$(\text{CH}_3)_3\text{C}:\text{CHCOCH}_3$ . . . . .	98.08	0.8566 <sup>18</sup>
11	Mesotartaric acid. ....	$(\text{HO})_2\text{C}_2\text{H}_2(\text{CO}_2\text{H})_2 + \text{H}_2\text{O}$ . . . . .	168.06	.....
12	Mesoxalic acid. ....	$(\text{OH})_2\text{C}(\text{CO}_2\text{H})_2$ . . . . .	136.03	.....
13	Metaldehyde. ....	$(\text{C}_2\text{H}_4\text{O})_3$ . . . . .	132.10	.....
14	Metastyrene. ....	$(\text{C}_8\text{H}_8)_x$ . . . . .	104.06	1.05413
15	Methane. ....	$\text{CH}_4$ . . . . .	16.03	0.559(A): 0.415
16	Methoxy-benzamide (o.)	$\text{CH}_3\text{O.C}_6\text{H}_4\text{CO.NH}_2$ . . . . .	151.11	.....
17	“ (p.)	$\text{CH}_3\text{O.C}_6\text{H}_4\text{CO.NH}_2$ . . . . .	151.11	.....
18	benzoic acid (o.) . . . . .	$\text{CH}_3\text{O.C}_6\text{H}_4\text{CO}_2\text{H}$ . . . . .	152.06	1.180 <sup>15</sup>
19	“ (m.) . . . . .	$\text{CH}_3\text{O.C}_6\text{H}_4\text{CO}_2\text{H}$ . . . . .	152.06	.....
20	Methyl-acetanilid. ....	$\text{C}_2\text{H}_5\text{O.N}(\text{CH}_3)\text{C}_6\text{H}_5$ . . . . .	149.13	.....
21	acetate. ....	$\text{CH}_3\text{CO}_2\text{CH}_3$ . . . . .	74.05	0.9410 <sup>14</sup>
22	aceto-acetic ether. ....	$\text{CH}_3\text{COCH}(\text{CH}_3)\text{CO}_2\text{C}_2\text{H}_5$ . . . . .	144.10	1.009 <sup>8</sup>
23	acrylate. ....	$\text{C}_5\text{H}_7\text{O}_2\text{CH}_3$ . . . . .	86.05	0.973 <sup>9</sup>
24	acrylic acid. ....	$\text{CH}_2:\text{C}(\text{CH}_3)\text{CO}_2\text{H}$ . . . . .	86.05	1.0153 <sup>12</sup>
25	Methylal. ....	$\text{HCH}(\text{OCH}_3)_2$ . . . . .	76.06	0.8604 <sup>12</sup>
26	“ (K.) . . . . .	$\text{HCH}(\text{OCH}_3)_2$ . . . . .	76.06	0.855 <sup>11</sup>
27	Methyl alcohol. ....	$\text{CH}_3\text{OH}$ . . . . .	32.03	0.7984 <sup>15</sup>
28	“ (K.) . . . . .	$\text{CH}_3\text{OH}$ . . . . . [(OH) <sub>2</sub> ]	32.03	0.789 <sup>11</sup>
29	alizarine. ....	$\text{C}_6\text{H}_4(\text{CO})_2\text{C}_6\text{H}(\text{CH}_3)$ . . . . .	254.08	.....
30	allyl carbinol. ....	$\text{CH}_2:\text{CH}.\text{CH}_2.\text{CH}(\text{OH})$ . . . . .	86.08	0.834 <sup>10</sup>
31	“ ether . . . . .	$\text{CH}_3\text{OC}_3\text{H}_5$ . . . . . [(CH <sub>3</sub> )]	72.06	0.77 <sup>11</sup>
32	amine. ....	$\text{CH}_3\text{NH}_2$ . . . . .	31.08	0.699— <sup>11</sup>
33	“ (K.) . . . . .	$\text{CH}_3\text{NH}_2$ . . . . .	31.08	0.699— <sup>10.8</sup> <sub>15</sub>
34	amyl ketone. ....	$\text{CH}_3.\text{CO}.\text{C}_5\text{H}_{11}$ . . . . .	114.12	0.837 <sup>9</sup>
35	aniline. ....	$\text{CH}_3\text{NHC}_6\text{H}_5$ . . . . .	107.11	0.976 <sup>15</sup>
36	“ (K.) . . . . .	$\text{CH}_3\text{NHC}_6\text{H}_5$ . . . . .	107.11	0.9855 <sup>11</sup>
37	anthracene. ....	$\text{C}_6\text{H}_4:(\text{CH}_2)_2:\text{C}_6\text{H}_3.\text{CH}_3$ . . . . .	192.10	.....
38	anthraquinone (2) . . . . .	$\text{CH}_2.\text{C}_6\text{H}_3(\text{CO})_2\text{C}_6\text{H}_4$ . . . . .	222.08	.....
39	arsenic acid. ....	$\text{CH}_3.\text{AsO}(\text{OH})_2$ . . . . .	140.04	.....

\* Sol. CS<sub>2</sub>, s. sol. bz.† V. sol. CS<sub>2</sub>, chlo., and bz.

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	insol.	s. soluble	soluble	.....	159°	.....
2	v. v. s. sol.	.....	.....	exp.	.....	needles/w. . .
3	insol.	.....	.....	.....	96°	.....
4	insol.	s. sol. hot	s. soluble *	243°	dist. dec.	v. sm. cryst..
5	insol.	mod.sol.hot	†	125-6°	> 306° dec.	rhomb. pris. .
6	2.7 <sup>18</sup>	39	‡	202°	sub.	need./w.or al.
7	insol.	v. soluble	v. soluble	68-9°	219.5° C.	crystals. ....
8	insol.	soluble	soluble	.....	164.5°	.....
9	v. s. sol.	v. soluble	.....	166°	sub.	moncl./al....
10	soluble	∞	.....	.....	128.39°	.....
11	120 <sup>18</sup>	.....	.....	140-3°	.....	rectang. tab..
12	v. soluble	mod. sol.	s. soluble	119-20°	.....	needles.....
13	insol.	1.8 <sup>70</sup>	0.5 <sup>38</sup>	.....	sub. 112-5°	tetragonal...
14	insol.	insol.	v. v. s. sol.	dec.	.....	vitreous.....
15	5.45 c.c. <sup>0</sup>	52.2 c.c.	soluble	.....	-152.5 <sup>748</sup>	.....
16	soluble	.....	.....	129.0° C.	.....	leaflets/w....
17	s. soluble	.....	.....	162-3°	.....	.....
18	0.5 <sup>30</sup>	.....	.....	98°5°	200°+	moncl.tab./w.
19	s. soluble	v. soluble	v. soluble	106-7°	sub.	long need./w.
20	insol.	soluble	.....	101-2°	253° C. <sup>711</sup>	.....
21	33 <sup>23</sup>	∞	∞	-101.2°	57.5°	.....
22	.....	.....	.....	.....	186.8°	.....
23	.....	.....	.....	.....	80.3° C.	.....
24	mod. sol.	.....	.....	16°	162-3°	long prisms..
25	.....	.....	.....	.....	45.5°	.....
26	28.5	∞	∞	.....	41-3°	.....
27	∞	∞	∞	-94.9°	66.78°	.....
28	∞	∞	∞	-95°	65.7-66.3	.....
29	sol. acetone	soluble	soluble	250-2°	sub. 200°	orange need..
30	12.5	.....	.....	.....	115-6°	.....
31	.....	.....	.....	.....	46°	.....
32	1150 c.c. <sup>12,6</sup>	sol.	.....	.....	-6-6.5°	.....
33	v. soluble	∞	soluble	.....	-6-5.5°	.....
34	.....	.....	.....	.....	151-2°	.....
35	.....	.....	.....	.....	193.5°	.....
36	s. soluble	soluble	∞	.....	193-4°	yellow.....
37	sol. bz.	sol. CS <sub>2</sub>	.....	199-200°	.....	leaflets/al....
38	v. v. sol. bz.	v. s. sol.	soluble	177°	sub.	yel. needles..
39	soluble	soluble	.....	.....	.....	large leaf./al.

† Very soluble chloroform carbon disulphide and ligroin.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
<b>Methyl</b>				
1	arsenic dichloride. ....	$\text{CH}_3\text{AsCl}_2$ .....	160.93	.....
2	arsenious oxide. ....	$\text{CH}_3\text{AsO}$ .....	106.03	.....
3	benzoate. ....	$\text{C}_6\text{H}_5\text{CO}_2\text{CH}_3$ .....	136.06	1.0876 <sup>16</sup>
4	benzyl ketone. ....	$\text{CH}_3\text{CO.CH}_2\text{C}_6\text{H}_5$ .....	134.08	1.010 <sup>8</sup>
5	borate. ....	$(\text{CH}_3)_3\text{BO}_3$ .....	104.07	0.940 <sup>0</sup>
6	bromide. ....	$\text{CH}_3\text{Br}$ .....	94.99	1.732 <sup>0</sup>
7	butadiene (2) (2, 3) .....	$(\text{CH}_3)_2\text{C}:\text{C}:\text{CH}_2$ .....	68.06	0.6940 <sup>17</sup>
8	butenone (2) (1, 3) .....	$\text{CH}_3\text{CO.C}(\text{CH}_3):\text{CH}_2$ .....	84.06	.....
9	butyl carbinol. ....	$\text{CH}_3\text{CH}(\text{OH})\text{C}_4\text{H}_9$ .....	102.12	0.8327 <sup>0</sup>
10	“ ether. ....	$\text{CH}_3\text{O.C}_4\text{H}_9$ .....	88.10	0.7635 <sup>0</sup>
11	“ ketone. ....	$\text{CH}_3\text{CO.C}_4\text{H}_9$ .....	100.10	0.830 <sup>0</sup>
12	butyrate. ....	$\text{C}_4\text{H}_7\text{CO}_2\text{CH}_3$ .....	102.08	0.9194 <sup>8</sup>
13	butyryne. ....	$\text{C}_4\text{H}_6\text{O}$ .....	128.13	0.827 <sup>18</sup>
14	caprate. ....	$\text{C}_8\text{H}_{17}\text{CO}_2\text{CH}_3$ .....	186.18	.....
15	caproate. ....	$\text{C}_6\text{H}_{11}\text{CO}_2\text{CH}_3$ .....	130.12	0.9039 <sup>0</sup>
16	caprylate. ....	$\text{C}_7\text{H}_{13}\text{CO}_2\text{CH}_3$ .....	158.15	0.8942 <sup>0</sup>
17	chloride. ....	$\text{CH}_3\text{Cl}$ .....	50.48	0.9197 <sup>18</sup>
18	cinnamate. ....	$\text{C}_6\text{H}_5\text{CH}:\text{CH.CO}_2\text{CH}_3$ .....	162.08	1.0415 <sup>19</sup>
19	$\alpha$ -crotonate. ....	$\text{C}_3\text{H}_5\text{CO}_2\text{CH}_3$ .....	100.06	0.9806 <sup>4</sup>
20	cyanide. ....	$\text{CH}_3\text{CN}$ .....	41.03	0.7891 <sup>18</sup>
21	“ (K.) .....	$\text{CH}_3\text{CN}$ .....	41.03	0.784 <sup>18</sup>
22	diethyl carbinol. ....	$(\text{C}_2\text{H}_5)_2\text{C}(\text{OH}).\text{CH}_3$ .....	102.12	0.8237 <sup>20</sup>
23	ether. ....	$(\text{CH}_3)_2\text{O}$ .....	46.05	1.617
24	ethyl acetic acid. ....	$\text{CH}_3(\text{C}_2\text{H}_5)\text{CH.CO}_2\text{H}$ .....	102.08	0.938 <sup>18</sup>
25	“ acetone. ....	$\text{CH}_3\text{CO.CH}(\text{CH}_3)\text{C}_2\text{H}_5$ .....	100.10	0.818 <sup>19</sup>
26	“ carbonate. ....	$\text{CH}_3\text{CO}_3\text{C}_2\text{H}_5$ .....	104.06	1.002 <sup>27</sup>
27	“ ether. ....	$\text{CH}_3\text{O.C}_2\text{H}_5$ .....	60.06	0.7252 <sup>0</sup>
28	“ ketone. ....	$\text{CH}_3\text{CO.C}_2\text{H}_5$ .....	72.06	0.8045 <sup>20</sup>
29	“ (K.) .....	$\text{CH}_3\text{CO.C}_2\text{H}_5$ .....	72.06	0.8045 <sup>18</sup>
30	“ oxalate. ....	$\text{CH}_3\text{O.C}_2\text{O}_2.\text{OC}_2\text{H}_5$ .....	132.06	1.1556 <sup>0</sup>
31	“ succinate. ....	$\text{C}_6\text{H}_4\text{O}_4(\text{CH}_3)\text{C}_2\text{H}_5$ .....	160.10	1.0925 <sup>0</sup>
32	“ sulphide. ....	$\text{CH}_3\text{S.C}_2\text{H}_5$ .....	76.12	0.837 <sup>20</sup>
33	fluoride. ....	$\text{CH}_3\text{F}$ .....	34.03	.....
34	formate. ....	$\text{HCO}_2\text{CH}_3$ .....	60.03	0.9860 <sup>19</sup>
35	furfurol (2, 5) .....	$\text{CH}_2\text{C}_4\text{H}_2\text{O.CHO}$ .....	110.05	1.1087 <sup>18</sup>
36	glycolate (K.) .....	$\text{OHCH}_2\text{CO}_2\text{CH}_3$ .....	90.05	1.1677 <sup>18</sup>
37	hepten(2)ol(6) (2) .....	$\text{C}_7\text{H}_{13}\text{OH}$ .....	128.13	0.8545 <sup>20</sup>
38	hepten(2)one(6) (2) .....	$\text{C}_7\text{H}_{12}\text{CO}$ .....	126.12	0.8602 <sup>20</sup>
39	heptyl ether. ....	$\text{CH}_3\text{O.C}_6\text{H}_{13}$ .....	130.15	0.7953 <sup>0</sup>
40	hexyl ketone. ....	$\text{CH}_3\text{CO.C}_6\text{H}_{13}$ .....	128.13	0.8185 <sup>19</sup>
41	hydrazine. ....	$\text{NH}_2.\text{NHCH}_3$ .....	46.13	.....



Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1					133°	
2				95°	dec.	warts/CS <sub>2</sub> . . .
3	insol.	soluble	soluble		199.2° C.	
4				27°	215°	
5					65°	
6	s. soluble	soluble			4.5 <sup>0758</sup>	
7					40.5-1.5°	
8					98-102°	oil . . . . .
9	v. s. sol.	soluble			136°	
10					70.3°	
11					127.37°	
12		∞	∞		102-3°	
13					180°	
14					223.5°	
15					149.6°	
16				-40°	192.9°	
17	400 c.c.	3500 c.c.			-23.73°	
18				36°	259.6°	
19					120.7°	
20	∞	∞	sol. bz.	-44.4° C.	81.54°	
21	∞	∞	∞	-41°	80-2°	colorless . . . . .
22		soluble		< -38°	123° C.	
23	3700 c.c.	∞	∞		-23.65°	
24				< -19°	177° C.	
25					118° C.	
26				-14.5°	109.2° C.	
27	soluble	∞	∞		10.8°	
28					78.6°	
29	soluble . . .	∞	∞		79.5-81.5°	colorless . . . . .
30					173.7° C.	
31				< -20°	208.2° C.	
32					66.9°	
33	166 c.c. <sup>18</sup>					
34	soluble	∞	∞		32.3°	
35	3.3	v. soluble			187° C.	oil . . . . .
36					151.2° C.	
37					174-6°	
38					173-4°	
39					149.8°	
40				-16°	172.92°	
41		∞	∞		87 <sup>0745</sup>	

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Methyl hypochlorite . . .	$\text{CH}_3\text{ClO}$ . . . . .	66.48	
2	indol (pr. 2) . . . . .	$\text{C}_8\text{H}_7\text{N}$ . . . . .	131.11	
3	iodide . . . . .	$\text{CH}_3\text{I}$ . . . . .	142.00	2.2852 <sup>15</sup>
4	" (K.) . . . . .	$\text{CH}_3\text{I}$ . . . . .	142.00	2.27 <sup>16</sup>
5	isoamyl ether . . . . .	$\text{CH}_3\text{O.C}_5\text{H}_{11}$ . . . . .	102.12	0.6871 <sup>17</sup>
6	" ketone . . . . .	$\text{CH}_3\text{CO.C}_5\text{H}_{11}$ . . . . .	114.12	0.818 <sup>17</sup>
7	isobutyl ketone . . . . .	$\text{CH}_3\text{CO.C}_4\text{H}_9$ . . . . .	100.10	0.803 <sup>17</sup>
8	isobutyrate . . . . .	$(\text{CH}_3)_2\text{CH.CO}_2\text{CH}_3$ . . . . .	102.08	0.9119 <sup>18</sup>
9	isocyanide . . . . .	$\text{CH}_3\text{NC}$ . . . . .	41.07	0.7557 <sup>4</sup>
10	isohexyl ketone . . . . .	$\text{CH}_3\text{CO}(\text{CH}_2)_4\text{CH}(\text{CH}_3)_2$ . . . . .	128.13	0.817 <sup>19</sup>
11	isopropyl benzene (m.) . . . . .	$\text{CH}_3\text{C}_6\text{H}_4\text{CH}(\text{CH}_3)_2$ . . . . .	134.12	0.862 <sup>20</sup>
12	isopropyl ketone . . . . .	$\text{CH}_3\text{COCH}(\text{CH}_3)_2$ . . . . .	86.08	0.8045 <sup>19</sup>
13	isosuccinate . . . . .	$\text{C}_4\text{H}_7\text{O}_2\text{CH}_3$ . . . . .	146.08	1.107 <sup>16</sup>
14	isovalerate . . . . .	$\text{C}_5\text{H}_9\text{O}_2\text{CH}_3$ . . . . .	116.10	0.9001 <sup>18</sup>
15	lactate . . . . .	$\text{C}_3\text{H}_5\text{O}_2\text{CH}_3$ . . . . . [ $\text{CO}_2\text{H}$	104.06	1.118 <sup>0</sup>
16	malic acid ( $\beta$ ) . . . . .	$\text{CO}_2\text{H.CH}(\text{CH}_3).\text{CHOH}$ . . . . .	148.06	
17	malonate . . . . .	$\text{C}_3\text{H}_2\text{O}_4(\text{CH}_3)_2$ . . . . .	132.06	1.1603 <sup>15</sup>
18	mandelate . . . . .	$\text{C}_8\text{H}_9\text{CH}(\text{OH}).\text{CO}_2\text{CH}_3$ . . . . .	166.08	
19	mercaptan . . . . .	$\text{CH}_3\text{SH}$ . . . . .	48.09	< 1
20	mustard oil . . . . .	$\text{CH}_3\text{NCS}$ . . . . .	73.13	1.0691 <sup>17</sup>
21	naphthaline ( $\alpha$ ) . . . . .	$\text{C}_{10}\text{H}_7\text{CH}_3$ . . . . .	142.08	1.0005 <sup>19</sup>
22	" ( $\beta$ ) . . . . .	$\text{C}_{10}\text{H}_7\text{CH}_3$ . . . . .	142.08	
23	naphthyl amine ( $\alpha$ ) . . . . .	$\text{CH}_3\text{NHC}_{10}\text{H}_7$ . . . . .	157.13	
24	" ether ( $\alpha$ ) . . . . .	$\text{CH}_3\text{O.C}_{10}\text{H}_7$ . . . . .	158.08	1.0964 <sup>17</sup>
25	" " ( $\beta$ ) . . . . .	$\text{CH}_3\text{O.C}_{10}\text{H}_7$ . . . . .	158.08	
26	nitrate . . . . .	$\text{CH}_3\text{NO}_3$ . . . . .	77.03	1.2167 <sup>15</sup>
27	nitrite . . . . .	$\text{CH}_3\text{NO}_2$ . . . . .	61.03	0.991 <sup>15</sup>
28	nitrolic acid . . . . .	$\text{CH}(\text{NO}_2)\text{NOH}$ . . . . .	90.10	
29	nonyl ketone . . . . .	$\text{CH}_3\text{CO.C}_9\text{H}_{19}$ . . . . .	170.18	0.8268 <sup>20</sup>
30	octyl ether . . . . .	$\text{CH}_3\text{O.C}_8\text{H}_{17}$ . . . . .	144.16	0.8014 <sup>0</sup>
31	" ketone . . . . .	$\text{CH}_3\text{CO.C}_8\text{H}_{17}$ . . . . .	156.16	0.825 <sup>20</sup>
32	oxalate . . . . .	$(\text{CH}_3)_2\text{C}_2\text{O}_4$ . . . . .	118.05	1.1479 <sup>54</sup>
33	palmitate . . . . .	$\text{C}_{16}\text{H}_{31}\text{O}_2\text{CH}_3$ . . . . .	270.27	
34	pelargonate . . . . .	$\text{C}_9\text{H}_{17}\text{O}_2\text{CH}_3$ . . . . .	172.16	0.892 <sup>0</sup>
35	pentamethylene . . . . .	$\text{CH}_2\text{C}_5\text{H}_9$ . . . . .	84.10	0.750 <sup>17</sup>
36	phenyl carbinol (K.) . . . . .	$\text{CH}_2(\text{C}_6\text{H}_5)\text{CHOH}$ . . . . .	122.08	1.013
37	" hydrazine ( $\alpha\alpha$ ) . . . . .	$\text{C}_6\text{H}_5(\text{CH}_2)\text{N.NH}_2$ . . . . .	122.16	
38	phosphine . . . . .	$\text{CH}_3\text{PH}_2$ . . . . .	48.04	
39	piperidine . . . . .	$\text{C}_4\text{H}_{10}\text{NCH}_3$ . . . . .	99.15	0.821 <sup>16</sup>
40	propargyl ether . . . . .	$\text{CH}_3\text{O.C}_3\text{H}_3$ . . . . .	70.05	0.83 <sup>12</sup>
41	propionate . . . . .	$\text{C}_3\text{H}_7\text{CO}_2\text{CH}_3$ . . . . .	88.06	0.9372 <sup>18</sup>
42	propyl acetic acid . . . . .	$\text{CH}_3(\text{C}_3\text{H}_7)\text{CH.CO}_2\text{H}$ . . . . .	116.10	0.9414 <sup>0</sup>

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1					12° <sup>0728</sup>	
2		v. soluble	v. soluble	59-60°	272° <sup>0780</sup>	need. or leaf..
3					42.3°	
4	0.8 c.c.	soluble	∞		42-3°	becomes red.
5					91°	
6					144° C.	
7	insol.	∞	∞; ∞ bz.		119° <sup>0788</sup>	
8	s. soluble	∞	∞		92.3°	
9	10 <sup>18</sup>	2.9		-45°	59.6°	
10					170-1°	
11					175-6°	
12					95°	
13					179°	
14					116.7°	
15	soluble				144.8° C.	
16	∞	∞	∞	123°	dec.	pris./acet.eth
17					181.5° C.	
18				52°		small leaflets
19	insol.	∞	∞		5.8° <sup>0782</sup>	yellow oil...
20				35°	119°	
21	v. soluble		v. soluble	-22°	240-2°	
22				32.5°	241-2°	leaflets/al...
23	v. soluble		v. soluble		293°	red oil...
24	v. soluble		v. soluble	< -10°	269° C. <sup>783</sup>	
25	s. soluble	s. soluble	v. soluble	72°	274°	small leaf/et.
26	s. soluble	soluble	soluble		65° exp.	
27					-12°	
28	v. soluble		soluble	64°		needles...
29				15°	230.6° C. <sup>786</sup>	
30					173°	
31				3.5°	211°	
32	s. soluble	soluble	sol.CH <sub>3</sub> OH	54.0°	163.3° C.	moncl. tab...
33				28°		crystals...
34					213.5° C.	
35					71-2°	
36	insol.				202-4°	
37					227° <sup>0748</sup>	
38	s. soluble	s. soluble	7000 c.c.		-14°	
39					107°	
40	s. soluble	∞	∞		61-2°	
41		∞	∞		79.9°	
42	0.57 <sup>17</sup>	soluble	soluble		193° <sup>0748</sup>	

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Methyl propyl acetylene .	$\text{CH}_3\text{C}:\text{C}_2\text{H}_7$	82.08	0.7377 <sup>8</sup>
2	“ “ ether . . . .	$\text{CH}_3\text{O.C}_2\text{H}_7$	74.08	0.7471 <sup>0</sup>
3	“ “ ketone . . . .	$\text{CH}_3\text{COC}_2\text{H}_7$	86.08	0.812 <sup>15</sup>
4	pyrrol (1) . . . . .	$\text{C}_4\text{H}_4\text{N.CH}_3$	81.10	0.9203 <sup>10</sup>
5	“ (2) . . . . .	$\text{C}_4\text{H}_4\text{N.CH}_3$	81.10	.....
6	pyrryl ketone . . . . .	$\text{C}_4\text{H}_4\text{N.CO.CH}_3$	69.10	.....
7	pyruviate . . . . .	$\text{C}_3\text{H}_3\text{O}_2.\text{CH}_3$	102.05	1.154 <sup>0</sup>
8	quinoline (6) . . . .	$\text{CH}_3.\text{C}_6\text{H}_5.\text{C}_2\text{H}_5\text{N}$	143.11	1.0664 <sup>8</sup>
9	“ (py. 3) . . . . .	$\text{C}_{10}\text{H}_9\text{N}$	143.11	1.0646 <sup>20</sup>
10	salicylate . . . . .	$\text{OHC}_6\text{H}_4\text{CO}_2\text{CH}_3$	152.06	1.1819 <sup>10</sup>
11	“ (K.) . . . . .	$\text{OHC}_6\text{H}_4\text{CO}_2\text{CH}_3$	152.06	1.182 <sup>11</sup>
12	selenide . . . . .	$(\text{CH}_3)_2\text{Se}$	109.25	> 1
13	succinate . . . . .	$(\text{CH}_3\text{O}_2\text{C})_2\text{C}_2\text{H}_4$	146.08	1.1261 <sup>15</sup>
14	stearate . . . . .	$\text{C}_{18}\text{H}_{35}\text{O}_2.\text{CH}_3$	298.30	.....
15	sulphate . . . . .	$(\text{CH}_3)_2\text{SO}_4$	126.11	1.3276 <sup>20</sup>
16	sulphide . . . . .	$(\text{CH}_3)_2\text{S}$	62.11	0.845 <sup>21</sup>
17	sulphite . . . . .	$(\text{CH}_3)_2\text{SO}_3$	110.11	1.0456
18	sulphocyanide . . . .	$\text{CH}_3.\text{S.CN}$	73.13	1.0693 <sup>8</sup>
19	sulphone chloride . . .	$\text{CH}_3\text{SO}_2\text{Cl}$	114.54	1.51
20	sulphonic acid . . . .	$\text{CH}_3.\text{SO}_3\text{H}$	96.09	.....
21	sulphuric acid . . . .	$\text{CH}_3\text{HSO}_4$	112.09	.....
22	teluride . . . . .	$(\text{CH}_3)_2\text{Te}$	157.64	.....
23	tetramethylene . . . .	$\text{CH}_3.\text{C}_4\text{H}_7$	70.08	.....
24	trichlo-acetate . . . .	$\text{CCl}_3.\text{CO}_2\text{CH}_3$	177.38	1.6733 <sup>8</sup>
25	trimethyl acetate . . .	$(\text{CH}_3)_3\text{C.CO}_2\text{CH}_3$	116.10	.....
26	trimethylene . . . . .	$\text{CH}_3.\text{C}_3\text{H}_5$	56.06	0.6912 <sup>20</sup>
27	urea . . . . .	$\text{NH}_2\text{CONHCH}_3$	74.13	.....
28	uric acid . . . . .	$\text{CH}_3.\text{C}_5\text{H}_3\text{N}_4\text{O}_3$	182.21	.....
29	“ (γ) . . . . .	$\text{CH}_3.\text{C}_5\text{H}_3\text{N}_4\text{O}_3$	182.21	.....
30	valeriate . . . . .	$\text{C}_4\text{H}_9\text{CO}_2.\text{CH}_3$	116.10	0.9097 <sup>0</sup>
31	Methylene acetate . . .	$(\text{CH}_3\text{CO}_2)_2\text{CH}_2$	132.06	.....
32	bromide . . . . .	$\text{CH}_2\text{Br}_2$	173.94	2.4930
33	chloride . . . . .	$\text{CH}_2\text{Cl}_2$	84.92	1.3778 <sup>1</sup>
34	cyanide . . . . .	$\text{CH}_2(\text{CN})_2$	66.10	.....
35	diethyl ether . . . . .	$\text{CH}_3(\text{OC}_2\text{H}_5)_2$	104.10	0.851 <sup>0</sup>
36	disulphonic acid . . . .	$\text{CH}_2(\text{SO}_3\text{H})_2$	176.15	.....
37	iodide . . . . .	$\text{CH}_2\text{I}_2$	267.96	3.2856 <sup>15</sup>
38	Milk sugar . . . . .	$\text{C}_{12}\text{H}_{22}\text{O}_{11} + \text{H}_2\text{O}$	360.19	1.525 <sup>20</sup>
39	Monacetyl . . . . .	$\text{C}_6\text{H}_5\text{O}_2.\text{C}_6\text{H}_5(\text{OH})_2$	134.80	1.20
40	Mono-ethyl carbonate . .	$\text{C}_2\text{H}_5\text{HCO}_3$	90.05	.....
41	“ . fumarate . . . . .	$\text{CO}_2\text{H.C}_2\text{H}_4.\text{CO}_2\text{C}_2\text{H}_5$	144.06	.....
42	methyl carbonate . . . .	$\text{CH}_3\text{HCO}_3$	76.03	.....

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1					83-4°	
2	soluble	∞	∞		38.9°	
3					102.° C.	
4	insol.	∞	∞		112-3° <sup>747</sup>	
5					147-8° <sup>750</sup>	
6	v. soluble	v. soluble	v. soluble	90°	220°	moncl. need..
7					134-7°	
8					257.4-8.6° <sup>745</sup>	
9				10-14°	250° <sup>710</sup>	
10	s. soluble	soluble	soluble		224° C.	[yellowish
11		soluble	∞	8°	221-3°	colorless to
12	insol.				58.2°	
13				18.5°	195.3° C.	crystals
14				38°		
15					188.3-8.6° C.	oil
16		soluble	soluble		37.5-8°	oil
17		soluble	soluble		121.5°	
18					133°	
19	insol.	soluble	soluble		160°	
20	v. soluble				dec. 130°	syrup
21	v. soluble	soluble	∞	< -30°		oil
22	insol.				82°	brass color..
23					39-42°	
24	decom.	decom.	soluble	34°	191-2°	
25					100-2°	
26					4-5°	
27	v. soluble	v. soluble	v. soluble	102°	dec.	prisms
28	0.4 <sup>100</sup>	v. v. s. sol.	sol. KOH	> 360° dec.		small pris./w.
29	1.25 <sup>100</sup>		sol. KOH	no m.p.	dec. 370-80	fine leaf./w.
30					127.3°	
31					170°	
32	1.148 <sup>20</sup>				98.5° <sup>755</sup>	
33	2.00 <sup>20</sup>				41.6° C.	
34	8.33	40; 10 chlo.	20; 6.7 bz.		109° <sup>20</sup>	
35	9.1 <sup>15</sup>				89° C.	
36	deliq.					needles
37				4°	180° dec.	leaflets
38	16.6	insol.	insol.	203.5° dec.	dec.	rhombic
39	s. soluble					
40				-61-57°		
41	s. soluble	v. soluble	v. soluble	70°		thin tablets.
42				-57-60°		

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Morphine . . . . .	$C_{17}H_{19}NO_3 + H_2O$ . . . . .	303.21	1.317-1.326
2	Mucic acid . . . . .	$(OH)_4C_6H_4(CO_2H)_2$ . . . . .	210.08	
3	Myricyl alcohol . . . . .	$C_{30}H_{61}OH$ . . . . .	536.50	
4	Myristic acid . . . . .	$C_{13}H_{27}CO_2H$ . . . . .	228.22	0.8622 <sup>44</sup>
5	aldehyde . . . . .	$C_{13}H_{27}CHO$ . . . . .	212.22	
6	Naphthalene . . . . .	$C_{10}H_8$ . . . . .	128.06	1.1517 <sup>18</sup>
7	sulphonic acid (α) . . . . .	$C_{10}H_7SO_3H + H_2O$ . . . . .	226.14	
8	“ (β) . . . . .	$C_{10}H_7SO_3H$ . . . . .	208.12	
9	Naphthalic acid (1) (8) . . . . .	$C_{10}H_6(CO_2H)_2$ . . . . .	216.06	
10	Naphthoic acid (α) . . . . .	$C_{10}H_7CO_2H$ . . . . .	172.06	
11	“ (β) . . . . .	$C_{10}H_7CO_2H$ . . . . .	172.06	
12	aldehyde (α) . . . . .	$C_{10}H_7CHO$ . . . . .	156.06	
13	“ (β) . . . . .	$C_{10}H_7CHO$ . . . . .	156.06	
14	Naphthol (α) . . . . .	$C_{10}H_7OH$ . . . . .	144.06	1.224 <sup>4</sup>
15	“ (β) . . . . .	$C_{10}H_7OH$ . . . . .	144.06	1.217 <sup>4</sup>
16	sulphonic acid (α) . . . . .	$OHC_{10}H_6SO_3H$ . . . . .	224.12	
17	“ acid (β) . . . . .	$OHC_{10}H_6SO_3H$ . . . . .	224.12	
18	Naphtho-phenazine (αβ) . . . . .	$C_{16}H_{10}N_2$ . . . . .	230.16	
19	quinaldine (α) . . . . .	$C_{13}H_9N.CH_3$ . . . . .	193.17	
20	“ (β) . . . . .	$C_{13}H_9N.CH_3$ . . . . .	193.17	
21	quinoline (α) . . . . .	$C_{13}H_9N$ . . . . .	179.11	
22	“ (β) . . . . .	$C_{13}H_9N$ . . . . .	179.11	
23	quinone (α) . . . . .	$C_{10}H_6O_2$ . . . . .	158.05	
24	“ (β) . . . . .	$C_{10}H_6O_2$ . . . . .	158.05	
25	Naphthyl acetate (α) . . . . .	$C_2H_3O_2.C_{10}H_7$ . . . . .	186.08	
26	“ (β) . . . . .	$C_2H_3O_2.C_{10}H_7$ . . . . .	186.08	
27	amine (α) . . . . .	$C_{10}H_7NH_2$ . . . . .	143.11	
28	“ (β) . . . . .	$C_{10}H_7NH_2$ . . . . .	143.11	
29	cyanide (α) . . . . .	$C_{10}H_7CN$ . . . . .	153.10	
30	“ (β) . . . . .	$C_{10}H_7CN$ . . . . .	153.10	
31	Naphthylene diamine (1,2) . . . . .	$C_{10}H_6(NH_2)_2$ . . . . .	158.16	
32	“ “ (1,5) . . . . .	$C_{10}H_6(NH_2)_2$ . . . . .	158.16	
33	“ “ (1,8) . . . . .	$C_{10}H_6(NH_2)_2$ . . . . .	158.16	
34	Naphthyl ether (α) . . . . .	$(C_{10}H_7)_2O$ . . . . .	270.12	
35	“ (β) . . . . .	$(C_{10}H_7)_2O$ . . . . .	270.12	
36	ketone (αβ) . . . . .	$C_{10}H_7.CO.C_{10}H_7$ . . . . .	282.12	
37	“ (ββ) (a.) . . . . .	$C_{10}H_7.CO.C_{10}H_7$ . . . . .	282.12	

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	0.1 <sup>20</sup> ; 0.25 <sup>100</sup>	5 <sup>20</sup> ; 7.5 <sup>7</sup>	insol.; .... 0.021 chlo.	.....	dec.	rhomb. pris. .
2	0.33	insol.	.....	206° dec.	.....	cryst. powder
3	.....	.....	.....	85°	.....	sm. need./et.
4	insol.	soluble	soluble	53.8°	250.5 <sup>100</sup>	leaflets. ....
5	.....	.....	.....	52.5°	168-9 <sup>22</sup>	.....
6	insol.	5.29 <sup>15</sup>	v. soluble	80.0°	218.21°	monoclinic ..
7	deliq.	soluble	s. soluble	85-90°	.....	crystalline. .
8	not deliq.	.....	.....	.....	decom.	leafy crystals
9	v. v. s. sol.	s. soluble	s. soluble	no m.p.	.....	silky need./al
10	v. s. sol. hot	v. soluble	.....	160°	.....	need./dil. al.
11	s. sol. hot	v. soluble	v. soluble	184° C.	>300°	moncl. tab. .
12	.....	.....	.....	.....	291.6° C.	thick liquid. .
13	sol. hot	v. soluble	v. soluble	60.5-1°	.....	thin leaf./w..
14	insol.	v. soluble	v. soluble	94-96°	278-80°	monoclinic...
15	s. sol. hot	v. soluble	v. soluble	122°	285-6°	moncl. leaf. .
16	mod. sol.	.....	.....	>250°	.....	rhomb.tab./w
17	v. soluble	v. soluble	.....	122°	.....	small leaflets
18	.....	v. s. sol.	v. s. sol.	142.5°	>360°	lemon yel.
19	.....	.....	.....	.....	>300°	...[pris./bz.
20	s. soluble	v. soluble	v. soluble	82°	>300°	large need. /dil. al.
21	v. s. sol.	v. soluble	v. soluble	52°	338 <sup>0719</sup>	moncl./et....
22	v. s. sol.	v. soluble	v. soluble	93.5°	349.5-50 <sup>721</sup>	glit. scales/w.
23	s. soluble	soluble	v. soluble	125°	not in steam	yel. need./lig.
24	soluble	soluble	.....	115-20° de	not in steam	red. need./et.
25	mod.sol. hot	soluble	v. soluble	49°	.....	nd. or tab./al.
26	insol.	v. soluble	v. soluble	70°	.....	small needles
27	0.167	v. soluble	v. soluble	50°	300°	flat needles..
28	soluble	.....	.....	111-2°	294°	leaflets/w....
29	.....	soluble	sol. lig.	37.5°	297-8° C.	needles. ....
30	.....	v. soluble	sol. lig.	66.5°	304-5° C.	leaflets/lig. .
31	mod. sol. hot	v. soluble	v. soluble	95-6°	.....	rh'b. leaf./w.
32	v. s. sol.	soluble	soluble	189.5°	.....	prisms/et....
33	s. soluble	∞	∞	66.5°	sub.	cryst./dil. al.
34	insol.	s. soluble	v. sol.; v. sol. bz.	110°	>360°	leaflets. ....
35	v. sol. bz.	s. soluble	v. soluble	105°	>360°	.....
36	v. sol. bz.	1.4 <sup>14</sup>	v. soluble	135°	dist.	needles/al....
37	.....	4	.....	125.5°	.....	needles/et. .

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Naphthyl ketone ( $\beta\beta$ ) (b.)	$C_{10}H_7.CO.C_{10}H_7$	282.12	
2	Narciene	$C_{22}H_{27}NO_3$	463.32	
3	Narcotine	$C_{22}H_{23}NO_7$	413.23	
4	Neohexane	$(CH_3)_3CC_2H_5$	86.12	0.649 <sup>v</sup>
5	Neopentane	$(CH_3)_4C$	72.10	
6	Nicotine	$C_{10}H_{14}N_2$	162.20	1.0110 <sup>v</sup>
7	Nicotinic acid	$C_6H_4.NCO_2H$	123.08	
8	Nitraniline (o.)	$NO_2.C_6H_4.NH_2$	138.13	
9	" (m.)	$NO_2.C_6H_4.NH_2$	138.13	1.430
10	" (p.)	$NO_2.C_6H_4.NH_2$	138.13	1.424
11	Nitro-acetic acid	$CH_2NO_2.CO_2H$	105.07	
12	alizarine ( $\alpha$ )	$C_{14}H_6O_4.NO_2$	285.10	
13	" ( $\beta$ )	$C_{14}H_6O_4.NO_2$	285.10	
14	anthraquinone ( $\alpha$ )	$C_{14}H_8O_2.NO_2$	253.10	
15	" ( $\beta$ )	$C_{14}H_8O_2.NO_2$	253.10	
16	benzaldehyde (o.)	$NO_2.C_6H_4.CHO$	151.08	
17	" (m.)	$NO_2.C_6H_4.CHO$	151.08	
18	" (p.)	$NO_2.C_6H_4.CHO$	151.08	
19	benzamide (o.)	$NO_2.C_6H_4.CONH_2$	166.13	
20	" (m.)	$NO_2.C_6H_4.CONH_2$	166.13	
21	" (p.)	$NO_2.C_6H_4.CONH_2$	166.13	
22	benzene	$C_6H_6$	78.11	
23	" (K.)	$C_6H_6$	78.11	1.1866 <sup>14</sup>
24	benzoic acid (o.)	$NO_2.C_6H_4.CO_2H$	167.08	1.575 <sup>4</sup>
25	" " (m.)	$NO_2.C_6H_4.CO_2H$	167.08	1.494 <sup>4</sup>
26	" " (p.)	$NO_2.C_6H_4.CO_2H$	167.08	
27	benzonitrile (o.)	$NO_2.C_6H_4.CN$	148.11	
28	" (m.)	$NO_2.C_6H_4.CN$	148.11	
29	" (p.)	$NO_2.C_6H_4.CN$	148.11	
30	benzyl chloride (o.)	$NO_2.C_6H_4.CH_2Cl$	171.54	
31	" " (m.)	$NO_2.C_6H_4.CH_2Cl$	171.54	
32	" " (p.)	$NO_2.C_6H_4.CH_2Cl$	171.54	
33	bromoform	$NO_2.CBr_3$	297.92	2.811 <sup>12</sup>
34	carbon	$C(NO_2)_4$	196.10	
35	cinnamic acid (o.)	$NO_2.C_6H_4.C_2H_2.CO_2H$	193.10	
36	" " (m.)	$NO_2.C_6H_4.C_2H_2.CO_2H$	193.10	
37	" " (p.)	$NO_2.C_6H_4.C_2H_2.CO_2H$	193.10	
38	cumene o. + p.	$NO_2.C_6H_4.CH(CH_3)_2$	165.13	
39	diphenyl (o.)	$C_6H_5.C_6H_5.NO_2$	199.11	



Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	.....	0.08	v. s. sol.	164-4.5°	.....	silky leaflets.
2	0.08 <sup>13</sup>	v. soluble	insol.	170°	.....	long pris./w..
3	insol.	1 <sup>85</sup> % <sup>20</sup> ; 5 <sup>78</sup>	0.77; 2.1 <sup>38</sup>	176°	dec.	rhomb. pris..
4	.....	soluble	soluble	.....	49.7°	.....
5	.....	.....	.....	-20°	9.5°	.....
6	∞	∞	∞	.....	246.7° <sup>745</sup>	.....
7	s. soluble	mod. sol.	v. v. s. sol.	228-9°	sub.	fine needles..
8	v. s. sol.	v. soluble	v. soluble	71.5°	.....	orange need..
9	0.114 <sup>20</sup>	11.06	7.89	114°	285°	yel. rhb. need.
10	0.077 <sup>20</sup>	5.84	6.10	147°	.....	yel. moncl./w
11	dec.	v. v. sol.	v. v. sol.	69°	.....	.....
12	s. soluble	soluble	sol. KOH	289°	sub.	yel. need./al.
13	s. soluble	v. soluble	sol. chlo. and bz.	244° dec.	sub. dec.	orange need. /bz.
14	insol.	v. s. sol.	v. v. s. sol.	230°	sub.	fine need./ace
15	sol. chlo. and bz.	s. soluble	s. soluble	220°	sub.	glit. prisms..
16	s. soluble	v. soluble	v. soluble	43.5-4.5°	.....	yel. need./w.
17	s. soluble	v. soluble	v. soluble	58°	.....	needles .....
18	s. soluble	v. soluble	s. soluble	106°	.....	prisms/w....
19	mod.sol. hot	.....	.....	176.6° C.	.....	short needles
20	sol. hot	.....	.....	142.7° C.	.....	needles.....
21	s. sol. hot	.....	.....	201.4° C.	.....	needles.....
22	insol.	soluble	soluble	3°	209.4° <sup>745</sup>	.....
23	s. soluble	soluble	. ∞	5-6°	209-10°	bright yellow
24	0.611 <sup>16</sup>	28 <sup>10</sup>	21.6 <sup>11</sup>	147°	.....	triclin.nd./w.
25	0.235 <sup>16</sup>	33 <sup>10</sup>	25.1 <sup>11</sup>	140-1°	.....	moncl. tab./w
26	0.04 <sup>20</sup>	0.09 <sup>10</sup>	2.2 <sup>11</sup>	238°	.....	leaflets/w....
27	sol. hot	v. soluble	v. soluble	109°	.....	silky needles.
28	s. soluble	v. soluble	v. soluble	117-8°	.....	needles.....
29	s. soluble	v. sol. chlo.	.....	147°	.....	leaflets/al....
30	.....	soluble.....	.....	48-9°	.....	crystals/lig...
31	.....	soluble.....	.....	45-7°	173-83°/ <sup>30</sup>	yel. need./lig.
32	.....	soluble.....	.....	71°	.....	leaf. or need..
33	.....	.....	.....	10.25°	127° <sup>118</sup>	prisms.....
34	insol.	soluble	soluble	13°	126°	white cryst..
35	insol.	s. soluble	.....	237-40°	.....	.....
36	.....	.....	.....	196-7°	.....	yellow need..
37	v. s. sol. hot	s. soluble	insol. lig.	285-6°	.....	prisms/al....
38	.....	.....	.....	-35°	dec.	.....
39	.....	.....	.....	37°	abt. 320°	tric. tab./al..

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Nitro-diphenyl (p.) . . . . .	$C_6H_5.C_6H_4.NO_2$ . . . . .	199.11	
2	-dimethyl aniline (m.) . . . . .	$NO_2.C_6H_4.N(CH_3)_2$ . . . . .	166.16	
3	“ “ (p.) . . . . .	$NO_2.C_6H_4.N(CH_3)_2$ . . . . .	166.16	
4	-ethane . . . . .	$CH_3.CH_2.NO_2$ . . . . .	75.08	1.0561 <sup>18</sup>
5	-form . . . . .	$CH(NO_2)_3$ . . . . .	151.13	
6	-isatine . . . . .	$NO_2.C_6H_4.NO_2$ . . . . .	192.11	
7	-methane . . . . .	$CH_3.NO_2$ . . . . .	61.07	1.1441 <sup>18</sup>
8	-naphthaline (α) . . . . .	$C_{10}H_7.NO_2$ . . . . .	173.10	1.331 <sup>4</sup>
9	“ (β) . . . . .	$C_{10}H_7.NO_2$ . . . . .	173.10	
10	-naphthol(2) (α) . . . . .	$NO_2.C_{10}H_6.OH$ . . . . .	189.10	
11	“ (4) . . . . .	$NO_2.C_{10}H_6.OH$ . . . . .	189.10	
12	“ (1) (β) . . . . .	$NO_2.C_{10}H_6.OH$ . . . . .	189.10	
13	-phenol (o.) . . . . .	$NO_2.C_6H_4.OH$ . . . . .	139.08	1.447
14	“ (m.) . . . . .	$NO_2.C_6H_4.OH$ . . . . .	139.08	
15	“ (p.) . . . . .	$NO_2.C_6H_4.OH$ . . . . .	139.08	1.468
16	-isophthalic acid (5) . . . . .	$NO_2.C_6H_3(CO_2H)_2 + 1\frac{1}{2}H_2O$ . . . . .	236.11	
17	-phthalic acid (3) . . . . .	$NO_2.C_6H_3(CO_2H)_2$ . . . . .	211.08	
18	“ “ (4) . . . . .	$NO_2.C_6H_3 + H_2O$ . . . . .	229.10	
19	-propane . . . . .	$CH_3.CH_2.CH_2.NO_2$ . . . . .	89.10	1.0108 <sup>18</sup>
20	-quinoline (5) . . . . .	$C_8H_6N.NO_2$ . . . . .	174.13	
21	“ (6) . . . . .	$C_8H_6N.NO_2 + XH_2O$ . . . . .	174.13	
22	“ (7) . . . . .	$C_8H_6N.NO_2$ . . . . .	174.13	
23	“ (8) . . . . .	$C_8H_6N.NO_2 + XH_2O$ . . . . .	174.13	
24	-salicylic acid (3) . . . . .	$NO_2.C_6H_3(OH)CO_2H + H_2O$ . . . . .	201.10	
25	“ “ (5) . . . . .	$NO_2.C_6H_3(OH)CO_2H$ . . . . .	183.08	
26	“ “ (6) . . . . .	$NO_2.C_6H_3(OH)CO_2H$ . . . . .	183.08	
27	Nitroso-aniline (p.) . . . . .	$NO.C_6H_4.NH_2$ . . . . .	122.13	
28	-benzene . . . . .	$C_6H_5.NO$ . . . . .	107.08	
29	-dimethyl aniline (p.) . . . . .	$NO.C_6H_4.N(CH_3)_2$ . . . . .	150.16	
30	-diphenyl amine . . . . .	$NO.N(C_6H_5)_2$ . . . . .	198.16	
31	-naphthol (2) (α) . . . . .	$NO.C_{10}H_6.OH$ . . . . .	173.10	
32	“ (4) . . . . .	$NO.C_{10}H_6.OH$ . . . . .	173.10	
33	“ (1) (β) . . . . .	$NO.C_{10}H_6.OH$ . . . . .	173.10	
34	-phenol (p.) . . . . .	$NO.C_6H_4.OH$ . . . . .	123.08	
35	Nitro-styrene (o.) . . . . .	$NO_2.C_6H_4.C_2H_3$ . . . . .	149.10	

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	insol.	mod. sol.	v. sol. chlo.	113°	340° C.	long need./al.
2	insol.	soluble	soluble	60-1°	280-5°	red mono....
3	insol.	soluble	.....	162-3°	.....	long yel. need
4	insol.	.....	.....	.....	114-4.8°	.....
5	mod. sol.	.....	.....	15°	explodes	white cryst..
6	s. soluble	v. soluble	sol. KOH	226-30°	.....	rosettes/al...
7	s. soluble	.....	sol. KOH	.....	101-1.5° <sup>768</sup>	oil. ....
8	.....	.....	2.81 <sup>15</sup>	61°	304°	yellow need.
9	.....	v. soluble	v. soluble	79°	.....	yellow need. /NH <sub>3</sub>
10	v. s. sol.	s. soluble	.....	128°	.....	green yel. leaf
11	sol. hot	v. soluble	sol. acet.	164°	.....	yel. need./w.
12	.....	v. soluble	.....	103°	.....	yel. need. or prisms
13	s. soluble	v. soluble	v. soluble	44.27°	214°	sulphur yel. prisms
14	s. soluble	v. soluble	v. soluble	96°	194° <sup>70</sup>	thick yel.crys. /et.
15	v. s. sol.	v. soluble	.....	115°	.....	moncl. prisms
16	0.14 <sup>15</sup>	v. v. sol.	.....	248-9°	.....	thin leaflets
17	v. s. sol.	v. soluble	v. soluble	219-20°	.....	yel.moncl. pr.
18	v. soluble	v. soluble	v. soluble	161°	.....	small needles
19	insol.	.....	.....	130.5-1.5	.....	oil. ....
20	s. sol. hot	.....	.....	72°	sub.	v. fine ne./w.
21	sol. hot	v. s. sol.	s. sol. lig.	149-50°	sub.	v. fine needles
22	.....	v. s. sol.	v. soluble	132-3°	.....	silky need. /dil. al.
23	s. soluble	mod. sol.	mod. sol.	88-9°	.....	moncl. need..
24	0.14 <sup>15</sup>	v. soluble	v. soluble	anhy. 144°	.....	long needles .
25	0.176 <sup>22</sup>	v. soluble	.....	228°	.....	long needles .
26	sol. acetone	mod. sol.	v. s. sol.	195°	.....	yellow need..
27	.....	.....	sol. bz.	173-4°	.....	blue need./bz
28	.....	mod. sol.	.....	67.5-8°	.....	monoclinic...
29	insol.	soluble	soluble	85°	.....	green leaflets
30	v. sol. bz.	s. soluble	.....	66.5°	.....	yel. quad. tab
31	v. v. s. sol.	v. soluble	s. soluble	152°	.....	yel. need./bz
32	.....	v. soluble	v. soluble	193-4° dec.	.....	needles. ....
33	insol.	2.4 <sup>13</sup>	v. soluble	.....	.....	leaf. or prisms
34	mod. sol.	v. soluble	v. soluble	126°	.....	green rhomb.
35	sol. H <sub>2</sub> SO <sub>4</sub>	.....	.....	12-3.5°	.....	oil. ....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Nitro-styrene (m.)	$\text{NO}_2.\text{C}_6\text{H}_4.\text{C}_2\text{H}_3$	149.10	
2	" (p.)	$\text{NO}_2.\text{C}_6\text{H}_4.\text{C}_2\text{H}_3$	149.10	
3	-thiophene	$\text{NO}_2.\text{C}_6\text{H}_4.\text{S}$	129.13	
4	-toluene (o.)	$\text{NO}_2.\text{C}_6\text{H}_4.\text{CH}_3$	137.10	1.168 <sup>15</sup>
5	" (K.)	$\text{NO}_2.\text{C}_6\text{H}_4.\text{CH}_3$	137.10	1.162 <sup>16</sup>
6	" (m.)	$\text{NO}_2.\text{C}_6\text{H}_4.\text{CH}_3$	137.10	1.168 <sup>17</sup>
7	-toluene (p.)	$\text{NO}_2.\text{C}_6\text{H}_4.\text{CH}_3$	137.10	1.123 liq.
8	-o-toluidine (3)	$\text{C}_6\text{H}_3(\text{CH}_3)(\text{NH}_2)\text{NO}_2$	152.14	
9	" (4)	$1:2:4=\text{CH}_3:\text{NH}_2:\text{NO}_2$	152.14	
10	" (5)	$1:2:5=\text{CH}_3:\text{NH}_2:\text{NO}_2$	152.14	
11	" (6)	$1:2:6=\text{CH}_3:\text{NH}_2:\text{NO}_2$	152.14	
12	-m- (2)	$1:3:2=\text{CH}_3:\text{NH}_2:\text{NO}_2$	152.14	
13	" (4)	$1:3:4=\text{CH}_3:\text{NH}_2:\text{NO}_2$	152.14	
14	" (5)	$1:3:5=\text{CH}_3:\text{NH}_2:\text{NO}_2$	152.14	
15	" (6)	$1:3:6=\text{CH}_3:\text{NH}_2:\text{NO}_2$	152.14	
16	-p- (2)	$1:4:2=\text{CH}_3:\text{NH}_2:\text{NO}_2$	152.14	
17	" (3)	$1:4:3=\text{CH}_3:\text{NH}_2:\text{NO}_2$	152.14	
18	-urea	$\text{NH}_2.\text{CO}.\text{NHNO}_2$	105.15	
19	Nonane n.	$\text{CH}_3(\text{CH}_2)_7\text{CH}_3$	128.16	0.7228 <sup>18</sup>
20	"	$(\text{CH}_2)_7\text{CH}(\text{CH}_3)_2$ $\text{CH}(\text{CH}_3)_3$	128.16	0.7247 <sup>19</sup>
21	Nondecane n.	$\text{CH}_3(\text{CH}_2)_{17}\text{CH}_3$	268.32	0.7774 <sup>20</sup>
22	Nondecylic acid	$\text{C}_{18}\text{H}_{37}\text{CO}_2\text{H}$	298.30	
23	Nonyl alcohol	$\text{CH}_3(\text{CH}_2)_7\text{CH}_2\text{OH}$	144.16	0.8346 <sup>21</sup>
24	Nonylene	$\text{CH}(\text{CH}_2)_6\text{CH}:\text{CH}_2$	126.15	0.7433 <sup>22</sup>
25	Nonylic acid	$\text{C}_9\text{H}_{17}\text{CO}_2\text{H}$	158.15	0.6890 <sup>23</sup>
26	Octadecane (n.)	$\text{CH}_3(\text{CH}_2)_{16}\text{CH}_3$	254.30	0.7768 <sup>24</sup>
27	Octadecine (1)	$\text{HC}:\text{C}(\text{CH}_2)_6\text{CH}_3$	250.27	0.7983 <sup>25</sup>
28	" (2)	$\text{CH}_3\text{C}:(\text{CH}_2)_6\text{CH}_3$	250.27	0.802 <sup>26</sup>
29	Octadecyl alcohol	$\text{CH}_3(\text{CH}_2)_{16}\text{CH}_2\text{OH}$	270.32	0.8124 <sup>27</sup>
30	Octadecylene (n.)	$\text{CH}_3(\text{CH}_2)_{16}\text{CH}:\text{CH}_2$	252.29	0.7910 <sup>28</sup>
31	Octane (n.)	$\text{CH}_3(\text{CH}_2)_6\text{CH}_3$	114.15	0.7188 <sup>29</sup>
32	"	$[(\text{CH}_2)_5\text{CH}(\text{CH}_2)_3]$	114.15	0.7111 <sup>30</sup>
33	Octine (1)	$\text{CH}_3(\text{CH}_2)_5\text{C}:\text{CH}$	110.12	0.7701 <sup>31</sup>
34	" (2)	$\text{CH}_3(\text{CH}_2)_5\text{C}:\text{C}.\text{CH}_3$	110.12	
35	Octochlor-propane	$\text{CCl}_3.\text{CCl}_2.\text{CCl}_3$	319.60	
36	Octone	$\text{C}_8\text{H}_{16}$	108.10	
37	Octyl alcohol (n.)	$\text{CH}_3(\text{CH}_2)_6\text{CH}_2\text{OH}$	130.15	0.8375 <sup>32</sup>
38	amine.	$\text{CH}_3(\text{CH}_2)_7\text{NH}_2$	129.20	
39	" (sec.)	$\text{CH}_3(\text{CH}_2)_5\text{CH}(\text{NH}_2)\text{CH}_3$	129.20	0.786
40	chloride (n.)	$\text{CH}_3(\text{CH}_2)_6\text{CH}_2\text{Cl}$	148.59	0.8786 <sup>33</sup>

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	sol. chlo.	sol. abs.	soluble	-5°	.....	yellow oil....
2	v. sol. bz.	v. sol. hot	v. soluble	29°	vol. in steam	prisms/lig...
3	.....	.....	.....	44°	224-5°	monoclinic...
4	insol.	soluble	.....	-10.5°	218°	.....
5	insol.	soluble	∞	-10.5°	219-21°	bright yellow
6	.....	soluble	.....	16°	230-1°	.....
7	insol.	soluble	.....	54°	238°	rhombic....
8	sol. chlo. and bz.	v. soluble	v. soluble	97°	.....	orange prisms /al.
9	.....	soluble	soluble	107-9°	.....	moncl. prisms
10	v. s. sol.	v. soluble	.....	127-8°	.....	lem. y. ne./w.
11	s. soluble	v. soluble	v. soluble	91.5°	.....	long yel. need
12	s. soluble	v. soluble	sol. acids	53°	.....	yel. needles..
13	soluble	v. soluble	v. soluble	109°	.....	yel. leaf./w..
14	v. s. sol.	v. soluble	v. soluble	98-98.4°	.....	orange need..
15	sol. acid	.....	.....	138°	.....	long yel. need
16	soluble	s. sol. CS <sub>2</sub>	.....	77.5°	.....	yel. monocl..
17	v. s. sol.	v. soluble	.....	116-7°	.....	red. prisms..
18	s. soluble	v. soluble	v. soluble	dec.	.....	cryst. pow./al
19	.....	.....	.....	< -51°	149.7° C.	.....
20	.....	.....	.....	.....	132°	.....
21	.....	.....	.....	32°	330° C.	.....
22	.....	.....	.....	66.5°	297-9° <sup>100</sup>	glit. leaf./al
23	soluble	∞	∞	-5°	213.5°	.....
24	.....	.....	.....	.....	139.5° C.	.....
25	soluble	soluble	soluble	12-2.5°	253-4°	leaflets....
26	.....	.....	.....	28°	317° C.	.....
27	.....	.....	.....	26°	180° <sup>18</sup>	.....
28	.....	.....	.....	30°	184° <sup>18</sup>	.....
29	.....	.....	.....	59°	210.5° <sup>18</sup>	glit. leaf./al..
30	.....	.....	.....	18°	179° <sup>18</sup>	crystalline...
31	.....	.....	.....	.....	125.46° C.	.....
32	.....	.....	.....	.....	108.53° C.	.....
33	.....	.....	.....	.....	131-2°	.....
34	.....	.....	.....	.....	133-4°	.....
35	.....	soluble	soluble	160°	268-9° <sup>734</sup>	leaflets....
36	.....	.....	.....	.....	133-5°	.....
37	soluble	∞	∞	.....	195.5°	.....
38	.....	.....	.....	.....	185-7°	.....
39	.....	.....	.....	.....	162.5°	.....
40	.....	.....	.....	.....	182.5-3.5C.	.....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Octyl chloride (sec.) . . . .	$\text{CH}_3(\text{CH}_2)_7\text{CHCl.CH}_3$ . . . .	148.59	0.8707 <sup>15</sup>
2	Octylene (n.) . . . . .	$\text{CH}_3(\text{CH}_2)_6\text{CH:CH}_2$ . . . .	112.13	0.7217 <sup>17</sup>
3	Octyl ether (n.) . . . . .	$(\text{C}_8\text{H}_{17})_2\text{O}$ . . . . .	242.27	0.8203 <sup>0</sup>
4	formate . . . . .	$\text{HCO}_2.\text{C}_8\text{H}_{17}$ . . . . .	158.15	0.8929 <sup>0</sup>
5	Oenanthol (K.) . . . . .	$\text{CH}_3(\text{CH}_2)_6\text{CHO}$ . . . . .	114.12	0.8025 <sup>11</sup>
6	Oenanthylic acid . . . . .	$\text{CH}_3(\text{CH}_2)_6\text{CO}_2\text{H}$ . . . . .	130.12	0.9183 <sup>20</sup>
7	Oleic acid . . . . .	$\text{CH}_3(\text{CH}_2)_{13}\text{CH:CH}.$ $\text{CH}_2.\text{CO}_2\text{H}$ . . . . .	282.28	0.8908 <sup>12</sup>
8	Oleine . . . . .	$(\text{C}_{18}\text{H}_{35}\text{O}_2)_2\text{C}_6\text{H}_5$ . . . . .	884.83	.....
9	Opianic acid . . . . .	$(\text{CH}_3\text{O})_2\text{C}_6\text{H}_2(\text{CHO})\text{CO}_2\text{H}$ . . . . .	210.08	.....
10	Orcein . . . . .	$\text{C}_{28}\text{H}_{24}\text{N}_2\text{O}_7$ . . . . .	500.27	.....
11	Orcin 1: 3: 5 . . . . .	$\text{CH}_3.\text{C}_6\text{H}_3(\text{OH})_2 + \text{H}_2\text{O}$ . . . .	124.06	1.2895 <sup>4</sup>
12	Oxalacetic acid . . . . .	$\text{CO}_2\text{H.CO.CH}_2\text{CO}_2\text{H}$ . . . .	132.03	.....
13	Oxalhydrazid . . . . .	$\text{C}_2\text{O}_2(\text{NH.NH}_2)_2$ . . . . .	118.21	.....
14	Oxalic acid . . . . .	$\text{CO}_2\text{H.CO}_2\text{H} + 2\text{H}_2\text{O}$ . . . .	126.04	1.653 <sup>12</sup>
15	Oxaluric acid . . . . .	$\text{NH}_2.\text{CO.NH.CO.CO}_2\text{H}$ . . . .	132.11	.....
16	Oxalyl chloride . . . . .	$\text{ClOC.COCl}$ . . . . .	126.90	.....
17	Oxamic acid . . . . .	$\text{CO}_2\text{H.CONH}_2$ . . . . .	89.04	.....
18	Oxamide . . . . .	$\text{CONH}_2.\text{CONH}_2$ . . . . .	88.11	1.667
19	Oxanilic acid . . . . .	$\text{CO}_2\text{H.CONHC}_6\text{H}_5 + \text{H}_2\text{O}$ . . . .	183.11	.....
20	Oxanilid . . . . .	$(\text{CONHC}_6\text{H}_5)_2$ . . . . .	240.18	.....
21	Oximide . . . . .	$<(\text{CO})_2>\text{NH}$ . . . . .	71.05	.....
22	Oxindol . . . . .	$\text{C}_8\text{H}_7\text{NO}$ . . . . .	133.10	.....
23	Oxyglutanic acid (α) . . . .	$\text{CO}_2\text{H.CHOH}(\text{CH}_2)_2\text{CO}_2\text{H}$ . . . .	148.06	.....
24	Oxythymol 4: 1: 2: 5 . . . .	$(\text{CH}_3)_2\text{CH}(\text{CH}_2)\text{C}_6\text{H}_2$ . . . .	166.12	.....
25	Palmitic acid . . . . .	$\text{CH}_3(\text{CH}_2)_{14}\text{CO}_2\text{H} . [(\text{OH})_2$ . . . .	256.26	0.8465 <sup>7,6</sup>
26	aldehyde . . . . .	$\text{CH}_3(\text{CH}_2)_{14}\text{CHO}$ . . . . .	240.26	.....
27	anhydride . . . . .	$(\text{C}_{16}\text{H}_{31}\text{O}_2)_2\text{O}$ . . . . .	494.50	.....
28	Palmitin . . . . .	$(\text{C}_{16}\text{H}_{31}\text{O}_2)_2\text{C}_6\text{H}_5$ . . . . .	806.78	.....
29	Palmitolic acid . . . . .	$\text{C}_{15}\text{H}_{27}.\text{CO}_2\text{H}$ . . . . .	252.23	.....
30	Palmitone . . . . .	$(\text{C}_{15}\text{H}_{31})_2\text{CO}$ . . . . .	450.50	0.7997 <sup>12</sup>
31	Palmito-nitrile . . . . .	$\text{C}_{15}\text{H}_{31}\text{CN}$ . . . . .	237.29	0.8224 <sup>12</sup>
32	Papaverine . . . . .	$\text{C}_{20}\text{H}_{21}\text{NO}_4$ . . . . .	351.21	1.308-1.337
33	Papaverinic acid . . . . .	$\text{C}_{16}\text{H}_{13}\text{NO}_7$ . . . . .	331.05	.....
34	Parabamic acid . . . . .	$\text{CO} < (\text{NHCO})_2 >$ . . . . .	114.10	.....
35	Paracyanogen . . . . .	$(\text{CN})_6$ . . . . .	156.24	.....
36	Paraformaldehyde . . . . .	$(\text{CH}_2\text{O})_x$ . . . . .	60.03	.....
37	Paraldehyde . . . . .	$(\text{C}_2\text{H}_4\text{O})_3$ . . . . .	132.10	0.9943 <sup>12</sup>
38	Pelargonic acid . . . . .	$\text{CH}_3(\text{CH}_2)_7\text{CO}_2\text{H}$ . . . . .	158.15	0.9068 <sup>12</sup>

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1					171-3° C.	
2					124.6° <sup>760</sup>	
3					291.7°	
4					198.1°	
5		soluble	∞		153-5°	colorless
6	s. soluble			-10.5°	222.4° <sup>743</sup>	
7	insol.	soluble	soluble	14°	285.5-6° <sup>100</sup>	needles
8	insol.	s. soluble	v. soluble	-5°	dist. in vac.	oil
9	0.25; 1.7° <sup>100</sup>	soluble	soluble	150°		thin prisms
10	sol. acetone	soluble	insol. bz. chlo.			small red crys
11	v. soluble	v. soluble	v. soluble	106.5-8° anhy.	287-90°	moncl. prisms
12	v. soluble	v. soluble	v. soluble	172° dec.		
13	soluble	v. s. sol.	v. v. s. sol.	235° dec.		long need./w.
14	8.6° <sup>30</sup> ; 37.1° <sup>65</sup>	40° <sup>15</sup>	1.27° <sup>15</sup>	99° anhy.	sub. 150°+	moncl. prisms
15	v. s. sol.			187°		cryst. powder
16	fumes in air				70°	
17	1.7° <sup>17</sup>	v. v. s. sol.		dec. 210°		cryst. powder
18	0.04			417-9° dec.		cryst. powder
19	s. soluble	v. soluble	v. soluble	149-50°		needles/w.
20	insol.	insol.	insol.	245°	320°	scales
21	s. soluble		sol. NH <sub>3</sub>			glit. prisms
22	sol. hot	soluble	soluble	120°	dist.	long need./w.
23	v. soluble	v. soluble		72-3°		crystalline
24	v. s. sol.	v. soluble	v. soluble	139.5°	290°	crystalline
25		1.13°		62.62°	138-9° <sup>0</sup> mm.	[et.
26			s. soluble	58.5°	192-3° <sup>22</sup>	pearly scales
27				64°		
28	insol.	0.0043° <sup>21</sup>	v. soluble	62°		
29	insol.	v. soluble	v. soluble	47°	240° <sup>15</sup>	silky needles.
30				82.8°		leaflets/al.
31				31°	251.5° <sup>100</sup>	hexag. tab.
32	v. v. s. sol.	soluble	0.4° <sup>10</sup>	147°		trimet. prism.
33	v. s. sol.	v. s. sol.	v. s. sol.	233° dec.		v. small tab.
34	4.72° <sup>8</sup>					monoclinic
35	insol.	insol.			sub.	
36	soluble			abt. 120°		amorphous
37	12° <sup>13</sup>			10.5°	124° C.	
38	s. soluble	soluble	soluble	12.5°	253-4°	leaflets

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Pentamethyl benzoic ac.	$(\text{CH}_3)_5\text{C}_6\text{CO}_2\text{H}$	192.13	
2	Pentaminobenzene	$\text{C}_6\text{H}(\text{NH}_2)_5$	153.09	
3	Penta-brombenzene	$\text{C}_6\text{HBr}_5$	472.81	
4	-chlor-aniline	$\text{Cl}_5\text{C}_6\text{NH}_2$	265.31	
5	" -benzene.	$\text{C}_6\text{HCl}_5$	250.26	1.8342 <sup>16</sup>
6	-decane (n.)	$\text{CH}_3(\text{CH}_2)_{13}\text{CH}_3$	212.26	0.7689 <sup>17</sup>
7	-erythrite	$\text{C}(\text{CH}_2\text{OH})_4$	136.10	
8	-ethyl benzene	$\text{C}_6\text{H}(\text{C}_2\text{H}_5)_5$	218.21	0.8985 <sup>18</sup>
9	-methylene	$(\text{CH}_2)_5$	70.08	0.7506 <sup>19</sup>
10	" diamine	$\text{NH}_2\text{CH}_2(\text{CH}_2)_3\text{CH}_2\text{NH}_2$	102.20	0.8846 <sup>20</sup>
11	" dibromide	$\text{CH}_2\text{Br}(\text{CH}_2)_3\text{CH}_2\text{Br}$	230.00	
12	" cis-dicarboxic acid	$\text{C}_5\text{H}_8(\text{CO}_2\text{H})_2$	158.08	
13	" oxide	$\text{CH}_2 < (\text{CH}_2\text{CH}_2)_2 > \text{O}$	86.08	0.8800 <sup>9</sup>
14	-methyl phenol	$(\text{CH}_3)_5\text{C}_6\text{OH}$	164.13	
15	" rosaniline	$\text{C}_{24}\text{H}_{20}\text{N}_3\text{O}$	375.12	
16	Pentane (n.)	$\text{CH}_3(\text{CH}_2)_3\text{CH}_3$	72.10	0.6337 <sup>15</sup>
17	Penten(2)ic(1) acid	$\text{CH}_3\text{CH}_2\text{CH}:\text{CH}.\text{CO}_2\text{H}$	100.06	0.9921 <sup>15</sup>
18	Pentinoic acid	$\text{C}_4\text{H}_5\text{CO}_2\text{H}$	98.05	
19	Perchlor ether	$(\text{C}_2\text{Cl}_5)_2\text{O}$	418.50	1.900 <sup>14</sup>
20	Perseïte (d. or l.)	$\text{C}_7\text{H}_{10}\text{O}_7$	212.13	
21	Phenanthrene-quinone	$\text{C}_{16}\text{H}_8\text{CO}_2\text{CO}_2\text{C}_6\text{H}_4$	208.06	1.4045
22	Phenanthrol	$\text{C}_{14}\text{H}_9\text{OH}$	194.08	
23	Phenazine	$\text{C}_8\text{H}_6 < \text{N}_2 > \text{C}_6\text{H}_4$	180.14	
24	Phenanthrene	$< (\text{C}_6\text{H}_4\text{CH}_2) >$	178.08	1.063 <sup>100</sup>
25	Phenanthroline	$\text{C}_{12}\text{H}_8\text{N}_2 + 2\text{H}_2\text{O}$	216.14	
26	Phenetol (K.)	$\text{C}_6\text{H}_5\text{OC}_2\text{H}_5$	122.08	0.963 <sup>11</sup>
27	Phenol	$\text{C}_6\text{H}_5\text{OH}$	94.05	1.0597 <sup>33</sup>
28	-phthaleïn	$(\text{OHC}_6\text{H}_4)_2\text{CO}.\text{C}_6\text{H}_4\text{CO}$	318.12	
29	-sulphonic acid (o.)	$\text{OH}.\text{C}_6\text{H}_4.\text{SO}_3\text{H}$	174.11	
30	" " (m.)	$\text{OH}.\text{C}_6\text{H}_4.\text{SO}_3\text{H} + 2\text{H}_2\text{O}$	192.03	
31	" " (p.)	$\text{OH}.\text{C}_6\text{H}_4.\text{SO}_3\text{H}$	174.11	
32	Phenoxybenzoic ac. (o.)	$\text{C}_6\text{H}_5\text{OC}_6\text{H}_4\text{CO}_2\text{H}$	214.08	
33	Phentriazine (a.)	$\text{C}_7\text{H}_5\text{N}_3$	131.16	
34	Phenyl acetate	$\text{CH}_3.\text{CO}_2.\text{C}_6\text{H}_5$	136.06	1.0927 <sup>1</sup>
35	-acetic acid	$\text{C}_6\text{H}_5\text{CH}_2.\text{CO}_2\text{H}$	136.06	1.0778 <sup>63</sup>
36	-acetylene	$\text{C}_6\text{H}_5\text{C}:\text{CH}$	102.05	0.9295 <sup>2</sup>
37	-acridine	$\text{C}_6\text{H}_4\text{NC}(\text{C}_6\text{H}_5)_2\text{C}_6\text{H}_4$	255.15	
38	-allylene	$\text{C}_6\text{H}_5.\text{C}:\text{C}.\text{CH}_3$	116.06	
39	-amino-propionic acid ( $\beta\alpha$ )	$\text{C}_6\text{H}_5\text{CH}_2.\text{CH}(\text{NH}_2)\text{CO}_2\text{H}$	165.13	
40	-amino " acid ( $\beta\beta$ )	$\text{C}_6\text{H}_5\text{CH}(\text{NH}_2)\text{CH}_2.\text{CO}_2\text{H}$	165.13	
41	-anthracene	$\text{C H}_5.\text{C}_{14}\text{H}_9$	254.12	



Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	v. v. s. sol.	soluble	.....	210.5°	sub.	fine need./w.
2	v. soluble	insol.	insol.	.....	.....	needles.....
3	.....	v. s. sol. <sup>78</sup>	.....	260°	sub.	need./bz. + al.
4	.....	v. soluble	v. soluble	232°	.....	long need./al.
5	.....	v. v. s. sol.	v. v. sol.	85-6°	275-6°	fine need./al.
6	.....	.....	.....	10°	270.5° C.	.....
7	5.1 <sup>15</sup>	.....	.....	253°	.....	tetragonal ...
8	.....	.....	.....	< -20°	277° C.	.....
9	.....	.....	.....	.....	50.2-.8°	oil. ....
10	v. soluble	v. soluble	s. soluble	abt. 15°	178-9°	syrup.....
11	.....	.....	.....	.....	204-6°	.....
12	soluble	.....	.....	140°	160°→anh.	long needles .
13	soluble	∞	∞	.....	81-2°	.....
14	.....	.....	.....	125°	267°	needles/al....
15	insol.	soluble	insol.	130°	.....	red brown
16	.....	.....	.....	.....	36-6.5° C.	.....[powder
17	8 <sup>20</sup>	.....	.....	9.5-10.5°	200-1° C.	.....
18	v. soluble	.....	v. soluble	102-3°	.....	monc. tab./et.
19	.....	.....	.....	69°	decom.	scales.....
20	6.9 <sup>18</sup>	v. s. sol.	.....	188° C.	.....	sm. needles..
21	v. s. sol. hot	s. soluble	s. soluble	202°	>360°	yel. orange ne
22	s. soluble	v. soluble	v. soluble	112°	.....	fluoresc. leaf.
23	v. s. sol.	2	s. soluble	170-1°	>360° sub.	long yel. need
24	insol.	2.62 <sup>18</sup>	v. soluble	100°	340°	moncl./al....
25	v. v. s. sol.	∞	v. v. s. sol.	78° anhyd.	>360°	long needles .
26	.....	soluble	∞	-34°	170-2°	colorless.....
27	6.7	∞	∞	42.5-3°	183°	large rhb. nee.
28	s. sol. hot	soluble	s. soluble	250-3°	.....	triclinic.....
29	v. soluble	v. soluble	.....	.....	.....	.....
30	soluble	soluble	.....	.....	.....	fine needles..
31	soluble	soluble	.....	.....	.....	syrup.....
32	v. v. s. sol.	v. soluble	v. soluble	113°	355° dec.	leaf./dil. al..
33	v. sol. hot	v. soluble	v. soluble	74-5°	235-40°	yel. need.bz. .
34	.....	.....	.....	.....	196°	.....
35	s. soluble	v. soluble	v. soluble	76.5°	265.5° C.	thin leaflets.
36	.....	.....	.....	.....	141.6°	.....
37	.....	s. soluble	mod. sol.	181°	403-4°	leaf. or prisms
38	.....	.....	.....	.....	185°	.....
39	mod. sol.	v.s. sol. hot	insol.	263-5° dec	sub. part.	leaf. or prisms
40	mod. sol.	v. soluble	v. v. s. sol.	120-1°	.....	lrg. moncl./w.
41	.....	v. soluble	v. soluble	152-3°	417°	leaflets/al....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Phenyl benzoate . . . . .	$C_6H_5CO_2C_6H_5$ . . . . .	198.08	
2	-benzoic acid (o.) . . . . .	$C_6H_5.C_6H_4.CO_2H$ . . . . .	198.08	
3	“ “ (m.) . . . . .	$C_6H_5.C_6H_4.CO_2H$ . . . . .	198.08	
4	“ “ (p.) . . . . .	$C_6H_5.C_6H_4.CO_2H$ . . . . .	198.08	
5	-butyric acid ( $\gamma$ ) . . . . .	$C_6H_5(CH_2)_3CO_2H$ . . . . .	164.10	
6	carbonate . . . . .	$(C_6H_5)_2CO_3$ . . . . .	214.08	
7	-crotonic acid ( $\beta\gamma$ ) . . . . .	$C_6H_5CH:CH.CH_2.CO_2H$ . . . . .	162.08	
8	cyanide . . . . .	$C_6H_5CN$ . . . . .	103.08	1.0084 <sup>17</sup>
9	“ (K.) . . . . .	$C_6H_5CN$ . . . . .	103.08	1.0235 <sup>18</sup>
10	disulphide . . . . .	$(C_6H_5)_2S_2$ . . . . .	218.20	
11	ditolylmethane . . . . .	$C_6H_5.CH.(C_6H_4.CH_3)_2$ . . . . .	272.16	
12	-ether . . . . .	$(C_6H_5)_2O$ . . . . .	170.08	
13	formanilid . . . . .	$HCO_2N(C_6H_5)_2$ . . . . .	197.13	1.23
14	formate . . . . .	$HCO_2C_6H_5$ . . . . .	122.05	
15	-glucosazone . . . . .	$C_{18}H_{22}N_4O_4$ . . . . .	358.34	
16	-glyoxylic acid . . . . .	$C_6H_5.CO.CO_2H$ . . . . .	134.05	
17	-hydrazine . . . . .	$C_6H_5HN.NH_2$ . . . . .	108.14	1.097 <sup>23</sup>
18	isocyanide . . . . .	$C_6H_5NC$ . . . . .	103.08	0.9775 <sup>15</sup>
19	- $\alpha$ -lactic acid ( $\beta$ ) . . . . .	$C_6H_5CH_2.CH(OH).CO_2H$ . . . . .	166.08	
20	- $\beta$ -lactic acid ( $\beta$ ) . . . . .	$C_6H_5CH(OH).CH_2.CO_2H$ . . . . .	166.08	
21	mustard oil . . . . .	$C_6H_5NCS$ . . . . .	135.14	1.135 <sup>15</sup>
22	naphthaline ( $\alpha$ ) . . . . .	$C_{10}H_7.C_6H_5$ . . . . .	204.10	
23	“ ( $\beta$ ) . . . . .	$C_{10}H_7.C_6H_5$ . . . . .	204.10	
24	$\beta$ -naphthylamine . . . . .	$C_{10}H_7.NH.C_6H_5$ . . . . .	219.15	
25	naphthyl methane . . . . .	$C_{10}H_7.CH_2.C_6H_5$ . . . . .	218.11	1.165 <sup>9</sup>
26	$\alpha$ -naphthyl ketone . . . . .	$C_{10}H_7.CO.C_6H_5$ . . . . .	232.10	
27	$\beta$ “ “ . . . . .	$C_{10}H_7.CO.C_6H_5$ . . . . .	232.10	
28	-phenol (m.) . . . . .	$C_6H_5.C_6H_4.OH$ . . . . .	170.08	
29	“ (p.) . . . . .	$C_6H_5.C_6H_4.OH$ . . . . .	170.08	
30	phosphine . . . . .	$C_6H_5PH_2$ . . . . .	110.06	1.001 <sup>15</sup>
31	phosphinic acid . . . . .	$C_6H_5PO(OH)_2$ . . . . .	158.06	1.475
32	phosphenige acid . . . . .	$C_6H_5PO(OH)H$ . . . . .	142.06	
33	-propiolic acid . . . . .	$C_6H_5.C \equiv C.CO_2H$ . . . . .	146.05	
34	-propyl alcohol (sec.) . . . . .	$C_6H_5.CH(OH).C_2H_5$ . . . . .	136.10	0.994 <sup>19</sup>
35	“ ( $\beta$ ) . . . . .	$C_6H_5(CH_2)_2CH_2OH$ . . . . .	136.10	1.008 <sup>18</sup>
36	-pyridine ( $\alpha$ ) . . . . .	$C_6H_5.C_5H_4N$ . . . . .	155.11	1. +
37	“ ( $\beta$ ) . . . . .	$C_6H_5.C_5H_4N$ . . . . .	155.11	1. +

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	.....	mod. sol.	mod. sol.	68-9°	314° C.	moncl. prism
2	s. sol. hot	v. soluble	.....	110-1°	343-4°	sm. need./al.
3	s. soluble	v. soluble	v. soluble	160-1°	.....	leaflets/al. . .
4	v. v. s. sol.	v. soluble	v. soluble	218-9°	sub.	long need./al.
5	mod.sol. hot	v. soluble	v. soluble	47.5°	290°	flat leaf./w...
6	.....	.....	.....	78°	301-2°	silky need./al.
7	v. s. sol.	v. soluble	v. soluble	86°	302°	thin need./w.
8	1 <sup>100</sup>	∞	∞	-17°	190.6° C.	.....
9	1 <sup>100</sup>	soluble	∞	-17°	189-91°	colorless.....
10	insol.	soluble	v. soluble	60-1°	310° dec.	needles.....
11	v. sol. chlo.	soluble	v. soluble *	55-6°	.....	small prisms.
12	v. v. s. sol.	v. soluble	soluble	28°	252.3°	need. or pris.
13	sol. hot	soluble	soluble	73-4°	210-20° in vac.	orthorhomb./al.
14	.....	.....	.....	.....	179-80° de.	.....
15	v. v. s. sol.	mod. sol. hot	.....	204-5°	.....	fine yel. need./al.
16	.....	v. soluble	insol. CS <sub>2</sub>	65-6°	.....	crystalline...
17	v. s. sol.	∞	∞	17.5°	243.5°	monoclinic...
18	.....	.....	.....	.....	165-6° dec.	greenish.....
19	soluble	.....	.....	97-8°	.....	thick pris./w.
20	v. soluble	.....	.....	93°	.....	prisms.....
21	insol.	soluble	soluble	.....	218.5°	.....
22	.....	v. soluble	v. soluble	no m.p.	324-5°	.....
23	v. sol. bz.	v. soluble	v. soluble	102-2.5°	345° C.	leaflets.....
24	.....	soluble	v. sol. chlo.	107.5-8°	395-9.5°	thin needles.
25	50 CS <sub>2</sub>	1.67 <sup>15</sup> ; 3.33 <sup>78</sup>	.....	58.6°	350°	tab./al., pris./et.
26	.....	2.49 <sup>12</sup>	.....	75.5°	385°	triclin. prisms
27	.....	2.01 <sup>12</sup>	.....	82°	.....	long needles
28	s. soluble	s. soluble	s. soluble	185°	.....	leaflets/w....
29	sol. hot	v. soluble	v. soluble	164-5°	305-8°	silky need.
30	.....	.....	.....	.....	160-1°	/dil. al.
31	23.5 <sup>15</sup>	soluble	soluble	158°	250° dec.	rhomb. leaf..
32	7.12 <sup>14</sup> ; 211 <sup>100</sup>	soluble	soluble	70°	dec.	leaflets.....
33	v. s. sol.	v. sol.	v. sol.	136-7°	sub.	trimet. prisms
34	.....	.....	.....	.....	212°	.....
35	s. soluble	∞	∞	< -18°	235°	thick liquid..
36	insol.	.....	.....	.....	268.5-	.....
37	insol.	v. soluble	v. soluble	.....	70.5 <sup>0749</sup> 269-70 <sup>0749</sup>	oil.....

\* Very soluble CS<sub>2</sub> and benzene.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (Δ).
1	Phenyl pyridine (α) . . . . .	$C_6H_5.C_5H_4N$ . . . . .	155.11	
2	-quinoline (α) . . . . .	$C_6H_5.C_{10}H_6N$ . . . . .	205.13	
3	“ (o.) . . . . .	$C_6H_5.C_{10}H_6N$ . . . . .	205.13	
4	salicylate . . . . .	$OH.C_6H_4.CO_2.C_6H_5$ . . . . .	214.08	
5	semicarbazid. . . . .	$C_6H_5.NH.NH.CONH_2$ . . . . .	151.19	
6	sulphide . . . . .	$(C_6H_5)_2S$ . . . . .	186.14	1.1175
7	sulphone . . . . .	$(C_6H_5)_2SO_2$ . . . . .	218.14	
8	thiourea . . . . .	$NH_2.CS.NHC_6H_5$ . . . . .	152.20	
9	toluene (o.) . . . . .	$C_6H_5.C_6H_4.CH_3$ . . . . .	168.10	
10	“ (m.) . . . . .	$C_6H_5.C_6H_4.CH_3$ . . . . .	168.10	1.031 <sup>0</sup>
11	“ (p.) . . . . .	$C_6H_5.C_6H_4.CH_3$ . . . . .	168.10	1.015 <sup>27</sup>
12	o-tolyl ketone . . . . .	$C_6H_5.CO.C_6H_4.CH_3$ . . . . .	196.10	
13	m-tolyl ketone . . . . .	$C_6H_5.CO.C_6H_4.CH_3$ . . . . .	196.10	1.088 <sup>17</sup>
14	p-tolyl ketone . . . . .	$C_6H_5.CO.C_6H_4.CH_3$ . . . . .	196.10	
15	urea . . . . .	$C_6H_5.NH.CO.NH_2$ . . . . .	136.14	
16	Phenylene-diacetic ac. (o.)	$C_6H_4(CH_2CO_2H)_2$ . . . . .	194.08	
17	“ (m.)	$C_6H_4(CH_2CO_2H)_2$ . . . . .	194.08	
18	“ (p.)	$C_6H_4(CH_2CO_2H)_2$ . . . . .	194.08	
19	-diamine(o.) . . . . .	$C_6H_4(NH_2)_2$ . . . . .	108.14	
20	“ (m.) . . . . .	$C_6H_4(NH_2)_2$ . . . . .	108.14	1.1389 <sup>15</sup>
21	“ (p.) . . . . .	$C_6H_4(NH_2)_2$ . . . . .	108.14	
22	“ (3) sulphonic ac. (o.)	$(NH_2)_2C_6H_3SO_3H + 1\frac{1}{2}H_2O$	205.23	
23	Phloroglucin . . . . .	$1: 2: 3C_6H_3(OH)_3 + 2H_2O$	162.08	
24	triethyl ether . . . . .	$1: 2: 3C_6H_3(OC_2H_5)_3$ . . . . .	210.15	
25	trimethyl “ . . . . .	$1: 2: 3C_6H_3(OCH_3)_3$ . . . . .	168.10	
26	trioxime . . . . .	$C_6H_6(NO_2)_3$ . . . . .	171.19	
27	Phoron . . . . .	$(CH_3)_2C: CHCOCH: C(CH_3)_2$	138.12	0.8850
28	Phosphenyl chloride . . . . .	$C_6H_5PCl_2$ . . . . .	178.94	1.319 <sup>20</sup>
29	Phospho-benzene . . . . .	$C_6H_5P: PC_6H_5$ . . . . .	216.08	
30	Phthalic acid . . . . .	$o.C_6H_4(CO_2H)_2$ . . . . .	166.05	1.585-1.593
31	aldehyde . . . . .	$o.C_6H_4(CHO)_2$ . . . . .	134.05	
32	anhydride . . . . .	$C_6H_4 < (CO)_2 > O$ . . . . .	148.03	1.527 <sup>4</sup>
33	Phthalid . . . . .	$C_6H_4.CH_2.O.CO-$ . . . . .	134.05	
34	Phthalimide . . . . .	$o.C_6H_4 < (CO)_2 > NH$ . . . . .	147.08	
35	Phthalyl chloride (o.) . . . . .	$C_6H_4C_2O_2.Cl_2$ . . . . .	202.93	1.4089 <sup>2</sup>
36	“ “ (m.) . . . . .	$C_6H_4C_2O_2.Cl_2$ . . . . .	202.93	
37	“ “ (p.) . . . . .	$C_6H_4C_2O_2.Cl_2$ . . . . .	202.93	
38	Picoline (α) . . . . .	$CH_3.C_5H_4N$ . . . . .	93.10	0.9526 <sup>10</sup>

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	mod. sol hot	.....	.....	77-8°	274-5°	glit. leaf./w..
2	s. soluble	v. soluble	v. soluble	86°	>300°	long need.
3	.....	v. soluble	v. soluble	.....	283° <sup>187</sup>	/dil. al. thick oil....
4	v. v. s. sol.	v. sol. hot	v. soluble	42-2.5°	172-3° <sup>113</sup>	rhomb. tab. .
5	s. soluble	v. soluble	.....	172°	.....	leaf./dil. al...
6	insol.	soluble	∞; ∞ CS <sub>2</sub> and bz.	.....	292-4°	.....
7	s. sol. hot	s. soluble	sol.; sol. bz.	128-9°	376.4° <sup>722</sup>	moncl. pris. bz.
8	0.25 <sup>100</sup>	mod. sol.	.....	143-5°	.....	trimet./al....
9	.....	.....	.....	.....	258-60°	.....
10	.....	.....	.....	.....	272-7°	.....
11	.....	.....	.....	-2-3°	263-7°	.....
12	..... [chlo.	.....	.....	< -18°	315-6° C.	.....
13	∞ bz. and	∞	∞	.....	314-6° <sup>745</sup>	.....
14	v. sol. bz.	mod. sol.	v. soluble	*	326° C.	hex. or moncl.
15	s. sol. hot	v. soluble	v. soluble	147°	.....	moncl. need..
16	s. soluble	v. soluble	v. soluble	150°	.....	fine needles..
17	soluble	v. soluble	v. soluble	170°	dist. dec.	needles/w....
18	v. s. sol.	v. soluble	v. soluble	244°	dist.	flat needles..
19	s. soluble	v. soluble	v. soluble	102-3°	256-8°	quad. tab./ch
20	soluble	v. soluble	v. soluble	63°	282-4°	rhombic....
21	mod. sol.	v. soluble	v. soluble	140°	267°	monoclin./w.
22	1.04 <sup>10</sup>	v. s. sol.	v. s. sol.	.....	.....	rhomb. tab...
23	v. soluble	v. soluble	v. soluble	217-9°	sub. dec.	rhomb. tab. .
24	insol. .	v. v. sol.	v. v. sol.	43°	175° <sup>24</sup>	(vol. with st)
25	v. sol. bz.	v. soluble	v. soluble	52°	255.5° C.	prisms/al....
26	v. s. sol.	v. s. sol.	sol. chlo.	exp. 155°	.....	cryst. powd..
27	.....	.....	.....	28°	198.5°	pale yel. cryst
28	dec.	∞ C <sub>6</sub> H <sub>6</sub>	∞ CS <sub>2</sub>	.....	224.6° C.	.....
29	insol.	insol.	insol.	149-50°	.....	pale yel. pow.
30	0.54 <sup>14</sup>	10.08 <sup>15</sup>	0.68 <sup>15</sup>	184°	.....	rhombic....
31	soluble	.....	.....	52°	.....	.....
32	s. sol. hot	soluble	sol. CS <sub>2</sub>	128°	284.5° C.	rhomb. pris..
33	v. s. sol.	v. soluble	.....	73°	290°	needles/w....
34	insol. bz.	insol. lig.	s. soluble	233.5° C.	sub.	hexag. pris./et
35	.....	.....	.....	0°	275.4° <sup>726</sup>	oil. ....
36	.....	.....	.....	41°	276°	cryst. mass..
37	.....	.....	.....	77-8°	259°	needles ....
38	.....	.....	.....	.....	133.5° C.	.....

\* The hexagonal crystals melt at 55°, while the monoclinic crystals melt at 60°.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Picolene ( $\beta$ )	$\text{CH}_3\text{C}_6\text{H}_4\text{N}$	93.10	0.9726 <sup>†</sup>
2	" ( $\gamma$ )	$\text{CH}_3\text{C}_6\text{H}_4\text{N}$	93.10	0.9742 <sup>†</sup>
3	Picolinic acid (2)	$\text{C}_6\text{H}_4\text{N}\cdot\text{CO}_2\text{H}$	123.08	
4	Picramide	$\text{NH}_2\text{C}_6\text{H}_3(\text{NO}_2)_3$	228.19	
5	Picramic acid	$\text{OH}\cdot\text{C}_6\text{H}_3(\text{NO}_2)_3\text{NH}_2$	199.16	
6	Picric acid	$\text{OH}\cdot\text{C}_6\text{H}_3(\text{NO}_2)_3$	229.15	1.813
7	Pimelic acid (n.)	$\text{CO}_2\text{H}\cdot(\text{CH}_2)_5\cdot\text{CO}_2\text{H}$	160.00	
8	Pinacoline	$\text{CH}_3\cdot\text{CO}\cdot\text{C}(\text{CH}_3)_3$	100.10	0.7999 <sup>18</sup>
9	Pinacone	$(\text{CH}_3)_3\text{C}(\text{OH})\text{C}(\text{OH})(\text{CH}_3)_2$	118.12	0.9672 <sup>15</sup>
10	Pinacolyl alcohol	$(\text{CH}_3)_3\text{C}\cdot\text{CH}(\text{OH})\cdot\text{CH}_3$	102.12	0.8347 <sup>9</sup>
11	Pinene	$\text{C}_{10}\text{H}_{16}$	136.13	0.8587 <sup>20</sup>
12	Pinol	$\text{C}_{10}\text{H}_{16}\text{O}$	152.13	0.9420 <sup>20</sup>
13	Piperidine	$\text{CH}_2 < (\text{CH}_2\text{CH}_2)_5 > \text{NH}$	85.13	0.8603 <sup>4</sup>
14	Piperonal	$\text{CH}_2 < \text{O}_2 > \text{C}_6\text{H}_5\cdot\text{CHO}$	150.05	
15	Piperonyl alcohol	$\text{CH}_2 < \text{O}_2 > \text{C}_6\text{H}_5\cdot\text{CH}_2\text{OH}$	152.06	
16	Polyglycolid	$(\text{CO}\cdot\text{CH}_2\cdot\text{O})_x$	58.02	
17	Populin	$\text{C}_{20}\text{H}_{32}\text{O}_8 + 2\text{H}_2\text{O}$	426.22	
18	Prehnitene	1: 2: 3: $4\text{C}_6\text{H}_5\cdot(\text{CH}_2)_4$	134.11	
19	Prehnitic acid	1: 2: 3: 4: $\text{C}_6\text{H}_5(\text{CO}_2\text{H})_4 + 2\text{H}_2\text{O}$	290.12	
20	Propargyl acetate	$\text{CH}_3\cdot\text{CO}_2\cdot\text{C}_2\text{H}_3$	98.05	1.005 <sup>2</sup>
21	alcohol	$\text{CH}\cdot\text{C}\cdot\text{CH}_2\text{OH}$	56.03	0.972 <sup>2</sup>
22	Propane	$\text{CH}_3\cdot\text{CH}_2\cdot\text{CH}_3$	44.07	0.535 <sup>0</sup>
23	Propiolic acid	$\text{CH}\cdot\text{C}\cdot\text{CO}_2\text{H}$	70.02	
24	Propion amide	$\text{C}_2\text{H}_5\cdot\text{CONH}_2$	73.10	1.0335
25	Propionic acid	$\text{CH}_3\cdot\text{CH}_2\cdot\text{CO}_2\text{H}$	74.05	0.9937 <sup>20</sup>
26	" " (K.)	$\text{CH}_3\cdot\text{CH}_2\cdot\text{CO}_2\text{H}$	74.05	0.991 <sup>†</sup>
27	aldehyde	$\text{CH}_3\cdot\text{CH}_2\cdot\text{CHO}$	58.05	0.8066 <sup>2</sup>
28	anhydride	$(\text{CH}_3\cdot\text{CH}_2\cdot\text{CO})_2\text{O}$	130.08	1.0169 <sup>15</sup>
29	Propyl acetate (n.)	$\text{CH}_3\cdot\text{CO}_2\cdot\text{C}_3\text{H}_7$	102.05	0.8908 <sup>2</sup>
30	-acetylene	$\text{C}_3\text{H}_7\cdot\text{C}\cdot\text{CH}$	68.08	
31	alcohol	$\text{CH}_3\cdot\text{CH}_2\cdot\text{CH}_2\text{OH}$	60.06	0.804 <sup>2</sup>
32	amine	$\text{CH}_3\cdot\text{CH}_2\cdot\text{CH}_2\text{NH}_2$	59.11	0.7186 <sup>20</sup>
33	-benzene	$\text{CH}_3(\text{CH}_2)_2\text{C}_6\text{H}_5$	120.10	0.8702 <sup>19</sup>
34	benzoate	$\text{C}_6\text{H}_5\cdot\text{CO}_2(\text{CH}_2)_2\text{CH}_3$	164.10	1.0316 <sup>15</sup>
35	-benzoic acid (o.)	$\text{CH}_3(\text{CH}_2)_2\text{C}_6\text{H}_4\cdot\text{CO}_2\text{H}$	164.10	
36	" " (p.)	$\text{CH}_3(\text{CH}_2)_2\text{C}_6\text{H}_4\cdot\text{CO}_2\text{H}$	164.10	
37	bromide	$\text{CH}_3\cdot\text{CH}_2\cdot\text{CH}_2\text{Br}$	123.02	1.3577 <sup>15</sup>
38	butyl ether	$\text{C}_3\text{H}_7\cdot\text{O}\cdot\text{C}_4\text{H}_9$	116.13	0.7773 <sup>9</sup>
39	butyrate	$\text{C}_3\text{H}_7\cdot\text{CO}_2\cdot\text{C}_4\text{H}_9$	130.12	0.8789 <sup>15</sup>

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	∞	.....	.....	.....	143.5° C.	.....
2	.....	.....	.....	.....	142.5–4.5C.	.....
3	v. soluble	v. soluble	v. v. s. sol.	134.5–6°	sub.	fine needles..
4	insol.	insol.	sol. acet.	188°	.....	yel. mon. tab.
5	0.14 <sup>22</sup>	mod. sol.	s. soluble	168–9°	.....	moncl. prisms /chlo.
6	1.161 <sup>15</sup>	v. soluble	v. soluble	122.5°	exp.	yel. leaf./w..
7	5 <sup>20</sup>	v. soluble	v. soluble	105°	272° <sup>100</sup>	rhombic/w...
8	v. v. s. sol.	.....	.....	.....	106° C.	.....
9	s. soluble	v. soluble	.....	35–8°	172–3°	small needles
10	.....	soluble	.....	4°	120–1°	silky needles.
11	v. s. sol.	soluble	∞	.....	156°	.....
12	.....	.....	.....	.....	184°	.....
13	∞	soluble	.....	–17°	106°	.....
14	0.2	∞ <sup>78</sup>	∞	37°	263°	long glit. crys.
15	s. soluble	∞	∞	51°	dec.	long crystals.
16	insol.	.....	.....	220°	.....	powder.....
17	0.4 <sup>15</sup> ; 42 <sup>100</sup>	mod. sol.	.....	180°	.....	v. fine needles
18	.....	.....	.....	–4°	204°	.....
19	v. soluble	.....	soluble	238° dec.	→anhyd.	large irreg. pr.
20	.....	soluble	soluble	.....	124–5°	.....
21	soluble	∞	∞	.....	114–5°	.....
22	.....	600 c.c.	.....	.....	–38–9°	.....
23	soluble	soluble	soluble	6°	144° dec.	long crystals.
24	.....	insol.	soluble	79°	213°	leaflets/chlo..
25	∞	∞	∞	–22° C.	140.7° C.	.....
26	∞	∞	∞	.....	140–1°	colorless.....
27	20 <sup>20</sup>	∞	∞	.....	48.8° C.	.....
28	insol.	.....	.....	.....	168.6°	.....
29	1.6	∞	∞	.....	101.6°	.....
30	.....	.....	.....	.....	48–9°	.....
31	∞	∞	∞	.....	97.4° C.	.....
32	soluble	.....	.....	.....	49°	.....
33	insol.	soluble	soluble	.....	158.2° <sup>752</sup>	.....
34	.....	.....	.....	.....	229.5° C.	.....
35	soluble	.....	.....	58°	.....	leaf./dil. al..
36	s. sol. hot	soluble	v. soluble	140°	.....	leaflets/w....
37	.....	.....	.....	.....	70.82° C.	.....
38	.....	.....	.....	.....	117.1°	.....
39	.....	∞	∞	.....	142.7°	.....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Propyl chloride . . . . .	$\text{CH}_3\text{CH}_2\text{CH}_2\text{Cl}$ . . . . .	78.51	0.8915 <sup>18</sup>
2	" " (sec.) . . . . .	$\text{CH}_3\text{CHClCH}_3$ . . . . .	78.51	0.8588 <sup>20</sup>
3	cyanide . . . . .	$\text{CH}_3\text{CH}_2\text{CH}_2\text{CN}$ . . . . .	69.10	0.796 <sup>18</sup>
4	ether . . . . .	$(\text{CH}_3\text{CH}_2\text{CH}_2)_2\text{O}$ . . . . .	102.12	0.7443 <sup>21</sup>
5	fluoride . . . . .	$\text{CH}_3\text{CH}_2\text{CH}_2\text{F}$ . . . . .	62.06	.....
6	formate . . . . .	$\text{HCO}_2\text{C}_3\text{H}_7$ . . . . .	88.06	0.9095 <sup>17</sup>
7	glycollate . . . . .	$\text{C}_3\text{H}_{10}\text{O}_3$ . . . . .	118.08	1.0621 <sup>18</sup>
8	hexamethylene . . . . .	$\text{C}_6\text{H}_{12}$ . . . . .	126.15	.....
9	hexyl ketone . . . . .	$\text{C}_3\text{H}_7\text{CO.C}_6\text{H}_{13}$ . . . . .	156.16	0.824 <sup>17</sup>
10	iodide . . . . .	$\text{CH}_3\text{CH}_2\text{CH}_2\text{I}$ . . . . .	170.03	1.7472 <sup>18</sup>
11	" (K.) . . . . .	$\text{CH}_3\text{CH}_2\text{CH}_2\text{I}$ . . . . .	170.03	1.742 <sup>18</sup>
12	isobutyl ketone . . . . .	$\text{C}_3\text{H}_7\text{CO.CH}_2\text{CH}(\text{CH}_3)_2$ . . . . .	128.13	0.813 <sup>17</sup>
13	mercaptan . . . . .	$\text{CH}_3\text{CH}_2\text{CH}_2\text{SH}$ . . . . .	76.13	.....
14	mustard oil . . . . .	$\text{C}_6\text{H}_7\text{NCS}$ . . . . .	101.15	0.9909 <sup>0</sup>
15	nitrate . . . . .	$\text{C}_3\text{H}_7\text{NO}_3$ . . . . .	105.10	1.0631 <sup>18</sup>
16	nitrite . . . . .	$\text{C}_3\text{H}_7\text{NO}_2$ . . . . .	89.10	0.935 <sup>21</sup>
17	phenol (m.) . . . . .	$\text{C}_6\text{H}_5\text{C}_6\text{H}_5\text{OH}$ . . . . .	136.10	.....
18	phenyl ketone . . . . .	$\text{C}_6\text{H}_5\text{CO.C}_6\text{H}_5$ . . . . .	148.10	1.009 <sup>0</sup>
19	propionate . . . . .	$\text{C}_2\text{H}_5\text{CO}_2\text{C}_3\text{H}_7$ . . . . .	116.10	0.8885 <sup>18</sup>
20	pyridine (a) . . . . .	$\text{C}_5\text{H}_5\text{C}_6\text{H}_5\text{N}$ . . . . .	121.13	< 1.
21	sulphide . . . . .	$(\text{CH}_3\text{CH}_2\text{CH}_2)_2\text{S}$ . . . . .	118.18	0.814 <sup>17</sup>
22	Propylene . . . . .	$\text{CH}_3\text{CH}:\text{CH}_2$ . . . . .	42.05	1.498
23	bromide . . . . .	$\text{CH}_3\text{CHBr.CH}_2\text{Br}$ . . . . .	201.97	1.9307 <sup>18</sup>
24	chloride . . . . .	$\text{CH}_3\text{CHCl.CH}_2\text{Cl}$ . . . . .	112.95	1.1656 <sup>14</sup>
25	iodide . . . . .	$\text{CH}_3\text{CHI.CH}_2\text{I}$ . . . . .	276.06	1.040 <sup>19</sup>
26	oxide . . . . .	$\text{CH}_3(\text{CH}_2\text{CH}_2)_2\text{O}$ . . . . .	58.05	0.859 <sup>0</sup>
27	Proto-catechuic acid. 3,4. . . . .	$(\text{OH})_2\text{C}_6\text{H}_3\text{CO}_2\text{H} + \text{H}_2\text{O}$ . . . . .	172.07	1.5415 <sup>4</sup>
28	aldehyde . . . . .	$3,4(\text{OH})_2\text{C}_6\text{H}_3\text{CHO}$ . . . . .	138.05	.....
29	Pseudo-cumene . . . . .	1: 2: $4\text{C}_6\text{H}_5(\text{CH}_3)_3$ . . . . .	120.10	0.8787 <sup>17</sup>
30	" " (K.) . . . . .	1: 2: $4\text{C}_6\text{H}_5(\text{CH}_3)_3$ . . . . .	120.10	0.8745 <sup>18</sup>
31	Pseudo-cumenol . . . . .	2: 4: $5(\text{CH}_3)_3\text{C}_6\text{H}_2\text{OH}$ . . . . .	136.10	.....
32	phenanthroline . . . . .	$\text{C}_{12}\text{H}_8\text{N}_2 + 4\text{H}_2\text{O}$ . . . . .	252.21	.....
33	Purpurin 1: 2: 4 . . . . .	$(\text{OH})_3\text{C}_6\text{H} < (\text{CO})_2 > \text{C}_6\text{H}_4$ . . . . .	256.06	.....
34	Pyrazine . . . . .	$\text{N} < (\text{CH}_2\text{CH}_2)_2 > \text{N}$ . . . . .	80.11	.....
35	Pyrazine (o.) . . . . .	$\text{N}_2 < (\text{CH}_2\text{CH}_2)_2 >$ . . . . .	80.11	1.1070 <sup>17</sup>
36	Pyrazol . . . . .	$\text{N} < (\text{CH}_2)_2 > \text{NH}$ . . . . .	64.11	.....
37	Pyrazoline . . . . .	$\text{NH} < \begin{smallmatrix} \text{N}:\text{CH} \\ \text{CH}_2\text{CH}_2 \end{smallmatrix} >$ . . . . .	66.13	.....
38	Pyrene . . . . .	$\text{C}_{16}\text{H}_{10}$ . . . . .	202.08	.....
39	Pyridine . . . . .	$\text{CH} < (\text{CH}_2\text{CH}_2)_2 > \text{N}$ . . . . .	79.08	0.9855 <sup>18</sup>
40	" (K.) . . . . .	$\text{CH} < (\text{CH}_2\text{CH}_2)_2 > \text{N}$ . . . . .	79.08	0.976 <sup>18</sup>



Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1					46.5°	
2					36.5°	
3					118.5°	
4	soluble	∞	∞		90.7°	
5					2°	
6	s. soluble	∞	∞		81°	
7					170.5° C.	
8					147.5-9.5	
9				-9°	206-7°	
10	0.107 <sup>20</sup>				102.2° C.	
11		∞	∞		101.5-2.5	turns brown.
12					155° <sup>710</sup>	
13	v. s. sol.	soluble	soluble		67-8°	
14					153°	
15		soluble	soluble		110.5°	
16		soluble	soluble		57°	
17	v. v. s. sol.	soluble		26°	228°	crystalline...
18				21°	218°	
19	s. soluble	∞	∞		122.4° C.	
20					165-8°	
21	insol.	soluble	soluble		141.5-2.5 <sup>772</sup>	
22	44.6 c.c.	1250 c.c.			-50.2°	
23	0.245 <sup>20</sup>	soluble			141.6° C.	
24	0.272 <sup>20</sup>				96.8° C.	
25	∞	∞	soluble		188-9°	
26	33	∞	∞		35°	
27	1.9 <sup>14</sup>	v. soluble	mod. sol.	199° dec.		moncl. need..
28	5.0	v. soluble	v. soluble	153-4°	dec.	flat cryst./w.
29					169.8° C.	
30		soluble	∞		168-70°	colorless....
31	v. v. s. sol	v. soluble	v. soluble	71-2°	234-5°	fine needlesw.
32	mod.sol. hot	v. soluble	s. soluble	173°	dist.	thin need./..
33	mod. sol.	soluble	soluble *	256°	dec.	red need./al.
34	∞	v. soluble	v. soluble	47°	118° <sup>760</sup>	abs.
35	∞	v. soluble	v. soluble	-8°	208°	tb./et.;pris.w.
36	v. soluble	v. soluble	v. soluble	69.5-70°	186-8°	long need./et.
37	∞	∞			144°	
38		1.37	v. soluble	148-9°	far > 360°	monoclinic...
39	∞			< -100°	116-6.2°	
40	∞	∞	∞		113.5-4.5	colorless....

\* Soluble CS<sub>2</sub> and hot benzene.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Pyridine purified (K.)	$\text{CH} < (\text{CH}.\text{CH})_2 > \text{N}$	79.08	0.9721 <sup>†</sup>
2	penta carbonic acid.	$\text{C}_5\text{N}(\text{CO}_2\text{H})_5 + 2 \text{ or } 3\text{H}_2\text{O}$	299.08	
3	sulphonic acid (3)	$\text{C}_6\text{H}_4\text{N}.\text{SO}_3\text{H}$	159.14	
4	tricarmonic ac. (2, 3, 4)	$\text{C}_3\text{H}_2\text{N}(\text{CO}_2\text{H})_3 + 1\frac{1}{2}\text{H}_2\text{O}$	238.10	
5	Pyrocatechin.	$\text{o}.\text{C}_6\text{H}_4(\text{OH})_2$	110.05	1.344
6	Pyrocoll.	$\text{C}_6\text{H}_3\text{N} < (\text{CO})_2 > \text{NC}_4\text{H}_3$	186.13	
7	Pyrogallol.	$1: 2: 3\text{C}_6\text{H}_3(\text{OH})_3$	126.05	1.463 <sup>40</sup>
8	trimethyl ether.	$1: 2: 3\text{C}_6\text{H}_3(\text{OCH}_3)_3$	168.10	
9	Pyromeconic acid.	$\text{C}_6\text{H}_4\text{O}_3$	112.03	
10	Pyromellitic acid.	$1: 2: 4: 5\text{C}_6\text{H}_2(\text{CO}_2\text{H})_4$	254.05	
11	Pyromucic acid.	$\text{C}_4\text{H}_3\text{O}.\text{CO}_2\text{H}$	112.03	
12	Pyron.	$\text{C}_3\text{H}_4\text{O}_2$	96.03	
13	Pyroracemic acid.	$\text{CH}_3\text{CO}.\text{CO}_2\text{H}$	88.03	1.2649 <sup>25</sup>
14	Pyrotartaric acid.	$\text{CH}_3\text{CH}(\text{CO}_2\text{H})\text{CH}_2\text{CO}_2\text{H}$	132.06	1.4105
15	Pyrrrol.	$< (\text{CH}.\text{CH})_2 > \text{NH}$	67.08	0.9669 <sup>†</sup>
16	Pyrrolidine.	$\text{NH} < (\text{CH}_2.\text{CH}_2)_2 >$	71.11	0.8520 <sup>22</sup>
17	Pyroline.	$\text{NH} < (\text{CH}_2.\text{CH})_2 >$	69.10	
18	Pyrron.	$\text{CO}(\text{C}_4\text{H}_3\text{NH})_2$	164.10	
19	Pyruvic acid.	$\text{CH}_3\text{CO}.\text{CO}_2\text{H}$	88.03	1.288 <sup>18</sup>
20	Quercitin.	$\text{C}_{16}\text{H}_{10}\text{O}_7 + 3\text{H}_2\text{O}$	302.08	
21	Quercite (d.)	$\text{CH}_2 < [\text{CH}(\text{OH}).\text{CH}(\text{OH}).]_2 > \text{CHOH}$	164.10	1.5845 <sup>13</sup>
22	Quercitrine.	$\text{C}_{21}\text{H}_{22}\text{O}_{12} + 2\text{H}_2\text{O}$	698.24	
23	Quinaldine.	$\text{py. } 2.\text{C}_9\text{H}_6\text{N}.\text{CH}_3$	143.11	1.0646 <sup>20</sup>
24	Quinic acid.	$(\text{OH}).\text{C}_6\text{H}_7.\text{CO}_2\text{H}$	192.10	1.637
25	" "	$\text{CH}_3\text{O}.\text{C}_6\text{H}_5\text{N}.\text{CO}_2\text{H}$	203.11	
26	Quinoline.	$\text{CH}.\text{CH} > \text{C}_2 < \text{CH}.\text{CH}$	129.10	1.0947 <sup>20</sup>
27	" (K.)	$< \text{CH}.\text{CH} > \text{C}_2 < \text{N}.\text{CH} >$	129.10	1.0933 <sup>†</sup>
28	Quinolinic acid.	$2: 3\text{C}_6\text{H}_3\text{N}(\text{CO}_2\text{H})_2$	167.05	
29	Quinone.	$\text{CO} < (\text{CH}.\text{CH})_2 > \text{CO}$	108.03	1.307–1.318
30	Racemic acid.	$(\text{CO}_2\text{H}.\text{CH}(\text{OH}).)_2 + \text{H}_2\text{O}$	168.07	1.6873
31	Raffinose.	$\text{C}_{18}\text{H}_{32}\text{O}_{16} + 5\text{H}_2\text{O}$	594.34	
32	Resorcine.	$\text{m}.\text{C}_6\text{H}_4(\text{OH})_2$	110.05	1.2717 <sup>15</sup>
33	dimethyl ether.	$\text{m}.\text{C}_6\text{H}_4(\text{OCH}_3)_2$	138.08	1.0803 <sup>†</sup>
34	Retene.	$\text{C}_{18}\text{H}_{18}$	234.15	1.13
35	Rhamnite.	$\text{CH}_3[\text{CH}(\text{OH})]_4.\text{CH}_2\text{OH}$	166.12	
36	Rhamnose.	$\text{CH}_3[\text{CH}(\text{OH})]_4\text{CHO} + \text{H}_2\text{O}$	182.12	1.4708 <sup>†</sup>

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	∞	∞	∞	.....	113.5–8.0	colorless.....
2	v. v. sol.	.....	v. v. s. sol.	no m.p.	dec. 220°	imperfect reg.
3	v. soluble	v. s. sol.	insol.	.....	.....	need. or leaf..
4	1.2 <sup>15</sup>	mod. sol.	insol.	249–50°	.....	rhomb. tab..
5	v. soluble	v. soluble	v. soluble	104°	240–5°	lf./bz.; nd./w.
6	insol.	v. s. sol.	v. s. sol.	268–9°	sub.	moncl. tab...
7	44 <sup>13</sup>	soluble	soluble	132.5–3.5	293°	thin leaf & ne.
8	.....	v. soluble	v. soluble	47°	235°	lg. need/dil.al.
9	soluble	soluble	s. soluble	117°	sub. 100°+	prisms.....
10	14.2 <sup>16</sup>	v. soluble	.....	264° anhy.	.....	tricl. tab./w..
11	3.6 <sup>15</sup> ; 25 <sup>100</sup>	v. soluble	v. soluble	132.6–4.3	sub. 100°+	moncl. prisms
12	v. v. s. sol.	.....	.....	32.5°	210–5°	small crystal
13	∞	∞	∞	13.6°	65° <sup>10</sup>	.....
14	66.7	v. soluble	v. soluble	112°	.....	triclin. prisms
15	insol.	v. soluble	v. soluble	.....	130–1°	.....
16	∞	.....	.....	.....	87.5–8.5°	.....
17	v. v. sol.	.....	.....	.....	90–1°	.....
18	v. v. s. sol.	v. soluble	v. soluble	160°	.....	trimet. need.
19	66.7	∞	∞	.....	165° dec.	/et.
20	0.35; 0.44 hot	.....	.....	abt. 250°	sub. part.	lem. yel. pow.
21	11 <sup>30</sup>	v. s. sol.	insol.	234° or 225	.....	moncl. prisms
22	{ 0.04 <sup>20</sup> 0.65 <sup>100</sup>	0.25	0.80	168° dec.	.....	yel.need. or lf.
23	.....	.....	.....	.....	246–7°	.....
24	40 <sub>9</sub>	s. soluble	insol.	161.6° C.	dec.	moncl. prisms
25	v. s. sol.	1.24 <sup>780</sup>	v. v. s. sol.	280° dec.	sub. part.	yellow prisms
26	.....	soluble	sol. CS <sub>2</sub>	–19.5°	240.4–1.3	.....
27	s. soluble	soluble	∞	.....	237–8°	usually yel...
28	0.55°	s. soluble	v. soluble	231°	dec.	moncl. prisms
29	s. sol. hot	v. soluble	v. soluble	115.7°	sub. need.	yel. moncl. pris./w.
30	20.6 <sup>20</sup>	2.04	.....	205–6°	.....	triclinic.....
31	14 <sup>30</sup>	0.1 <sup>30</sup> 90%	.....	118–9° anhy	dec. 130°	crystalline...
32	147.3 <sup>12.5</sup>	v. soluble	v. soluble	116°	276.5°	rhomb.tab./w.
33	v. s. sol.	soluble	soluble	< –17°	214–5°	vol.withste'm
34	.....	3	soluble	98.5°	390°	leaflets.....
35	v. soluble	v. soluble	v. s. sol.	121°	.....	triclin.pris./a.
36	50	s. soluble	.....	92–3°	.....	monoclin./w.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Ricinolic acid . . . . .	$\text{CH}_3(\text{CH}_2)_8\text{CH}(\text{OH})\cdot$ $\text{CH}:\text{CH}_2$	298.28	
2	Rosaniline . . . . .	$\text{C}_{20}\text{H}_{21}\text{N}_3\text{O}$	319.29	
3	" (p.) . . . . .	$(\text{NH}_2\text{C}_6\text{H}_4)_3\text{COH}$	305.18	
4	Rosinduline . . . . .	$\text{C}_{22}\text{H}_{15}\text{N}_3$	321.24	
5	Rosolic acid . . . . .	$\text{C}_{20}\text{H}_{16}\text{O}_3$	304.13	
6	Saccharic acid (d.) . . . . .	$\text{C}_6\text{H}_4(\text{OH})_4(\text{CO}_2\text{H})_2$	210.08	
7	Saccharine (d.) . . . . .	$(\text{C}_6\text{H}_{10}\text{O}_5)_x$	162.08	
8	Saccharin . . . . .	$\text{C}_6\text{H}_4 < \begin{smallmatrix} \text{CO} \\ \text{SO}_2 \end{smallmatrix} > \text{NH}$	183.14	
9	Salicin . . . . .	$\text{C}_{13}\text{H}_{18}\text{O}_7$	286.15	1.426-1.434
10	Salicylamide . . . . .	$\text{OH}\cdot\text{C}_6\text{H}_4\cdot\text{CONH}_2$	137.10	
11	Salicylic acid . . . . .	$\text{o.OH}\cdot\text{C}_6\text{H}_4\cdot\text{CO}_2\text{H}$	138.05	
12	acetate . . . . .	$\text{C}_2\text{H}_3\text{O}_2\cdot\text{C}_6\text{H}_4\cdot\text{CO}_2\text{H}$	180.06	
13	phenyl ether . . . . .	$\text{o.C}_6\text{H}_5\text{O}\cdot\text{C}_6\text{H}_4\cdot\text{CO}_2\text{H}$	214.08	
14	aldehyde (K.) . . . . .	$\text{o.OH}\cdot\text{C}_6\text{H}_4\cdot\text{CHO}$	122.05	1.165 <sup>44</sup>
15	anhydride . . . . .	$\text{C}_{14}\text{H}_{10}\text{O}_5$	240.06	
16	Saligenin . . . . .	$\text{OH}\cdot\text{C}_6\text{H}_4\cdot\text{CH}_2\text{OH}$	124.06	1.1613 <sup>25</sup>
17	Salol See Phenyl salicylate			
18	Santonin . . . . .	$\text{C}_{15}\text{H}_{18}\text{O}_3$	246.14	1.1866
19	Sarcolactic acid . . . . .	$\text{CH}_3\cdot\text{CH}(\text{OH})\cdot\text{CO}_2\text{H}$	90.05	
20	Sarcosine . . . . .	$\text{CH}_3\text{NH}\cdot\text{CH}_2\text{CO}_2\text{H}$	89.10	
21	Skatol . . . . .	$\text{C}_9\text{H}_7\text{N}$	131.11	
22	Sebacic acid . . . . .	$\text{CO}_2\text{H}\cdot(\text{CH}_2)_8\cdot\text{CO}_2\text{H}$	202.15	
23	Semicarbazid . . . . .	$\text{NH}_2\cdot\text{CO}\cdot\text{NH}\cdot\text{NH}_2$	75.16	
24	Silicobenzoic acid . . . . .	$\text{C}_6\text{H}_5\cdot\text{SiO}_2\text{H}$	138.45	
25	Silicon triethyl phenyl . . . . .	$\text{C}_6\text{H}_5\text{Si}(\text{C}_2\text{H}_5)_3$	192.56	0.9042 <sup>0</sup>
26	Silver fulminate . . . . .	$\text{C}_2\text{Ag}_2\text{N}_2\text{O}_2$	299.94	
27	Sodium ethyl . . . . .	$\text{NaC}_2\text{H}_5$	52.09	
28	glycerate . . . . .	$\text{NaC}_3\text{H}_7\text{O}_3$	114.11	
29	Sorbic acid . . . . .	$\text{CH}_3(\text{CH}:\text{CH})_2\text{CO}_2\text{H}$	112.06	
30	Sorbinose . . . . .	$\text{C}_6\text{H}_{12}\text{O}_6$	180.10	1.654 <sup>15</sup>
31	Sorbite . . . . .	$\text{C}_6\text{H}_{14}\text{O}_6 + \frac{1}{2}\text{H}_2\text{O}$	191.12	
32	Starch . . . . .	$(\text{C}_6\text{H}_{10}\text{O}_5)_x$	162.08	
33	Stearic acid . . . . .	$\text{CH}_3(\text{CH}_2)_{16}\text{CO}_2\text{H}$	284.30	0.8428 <sup>49</sup>
34	aldehyde . . . . .	$\text{CH}_3(\text{CH}_2)_{16}\text{CHO}$	268.30	
35	anhydride . . . . .	$(\text{C}_{18}\text{H}_{36}\text{O}_2)_2\text{O}$	550.56	
36	Stearine . . . . .	$(\text{C}_{18}\text{H}_{36}\text{O}_2)_3\text{C}_2\text{H}_5$	890.88	0.9245 <sup>45</sup>
37	Stearolic acid . . . . .	$\text{C}_{17}\text{H}_{31}\text{CO}_2\text{H}$	280.26	

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	.....	∞	∞	16-7°	250° <sup>15</sup>	cryst. mass. .
2	s. soluble	soluble	insol.	.....	dec.	need. or tab. .
3	insol.	soluble	.....	.....	.....	red. leaflets. .
4	insol.	v. soluble	v. soluble	198-9°	.....	brown lf./et. .
5	v. s. sol.	v. sol. hot	mod. sol.	abt. 270°	dec.	red leaflets . .
6	v. soluble	v. soluble	s. soluble	.....	.....	.....
7	13° <sup>15</sup>	.....	.....	160-1°	volatile	large rhb. pris.
8	0.4305 <sup>25</sup>	3.12/90%	*	220° dec.	sub.	crys./acetone
9	3.34° <sup>15</sup> ; 85° <sup>95</sup>	sol.	insol.	201°	230-40°	rhomb. leaf or prisms
10	s. soluble	.....	.....	138°	270° dec.	leaflets. ....
11	0.225° <sup>15</sup>	49.63° <sup>15</sup>	50.47° <sup>15</sup>	158° C.	sub.	fine need./w. .
12	v. s. sol.	v. soluble	v. soluble	118-8.5°	dec. > 140°	fine need./w. .
13	v. v. s. sol.	v. soluble	v. soluble	113°	355° dec.	leaf./dil. al. .
14	s. soluble	soluble	∞	-20°	196-7°	bright yellow
15	insol.	v. soluble	v. soluble	200-20°	dec.	yel. amor.
16	6.7° <sup>22</sup>	v. soluble	v. soluble	86°	sub. 100°+	rhomb. tab. . .
17	.....	.....	.....	.....	.....	.....
18	0.02° <sup>17</sup>	2.0° <sup>22</sup>	1.3° <sup>170</sup>	169-70°	sub. dec.	trimet. tab. or prisms
19	∞	∞	∞	.....	.....	syrup. ....
20	v. soluble	s. soluble	.....	210-5°	.....	rhombic. ....
21	s. soluble	soluble	sol. lig.	95°	265-6° <sup>755</sup>	glit. leaf./lig.
22	0.10° <sup>20</sup> ; 0.42° <sup>85</sup>	v. sol.	v. soluble	133-3.5°	294.5° <sup>100</sup>	feath'y cryst.
23	v. soluble	v. sol. bz.	v. sol. chlo.	96°	.....	pris./abs. al. .
24	insol.	sol. KOH	v. soluble	92°	.....	glassy/et. ....
25	insol.	.....	soluble	.....	230°	.....
26	2.75° <sup>100</sup>	v. sol. NH <sub>3</sub>	.....	exp.	.....	small need. . .
27	.....	.....	.....	.....	.....	.....
28	decom.	soluble	.....	.....	.....	white powd. .
29	v. s. sol.	v. soluble	v. soluble	134.5°	228° dec.	needles/w. . .
30	200	s. soluble	.....	164°	.....	rhombic. ....
31	soluble	v. s. sol.	.....	110-1°	.....	crystalline . .
32	insol.	insol.	insol.	no m.p.	.....	amorphous . .
33	insol.	0.15°	soluble	69.32°	291° <sup>100</sup>	leaflets. ....
34	.....	.....	.....	63.5°	212-3° <sup>22</sup>	scales/ether. .
35	.....	.....	.....	71-7°	.....	.....
36	insol.	v. s. sol.	soluble	55-71.5°	.....	crystalline. . .
37	insol.	s. soluble	v. soluble	48°	260°	long pris./al. .

\* Sol. acetone, benz., and hot xylene.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Stearone.....	$(C_{17}H_{35})_2CO$ .....	506.56	0.7979 <sup>9</sup>
2	Stilbene.....	$C_6H_5.CH:CH.C_6H_5$ .....	180.10	0.9707 <sup>119</sup>
3	Styrone.....	$C_6H_5.CH:CH_2$ .....	104.06	0.925 <sup>9</sup>
4	Suberic acid.....	$CO_2H.(CH_2)_6.CO_2H$ .....	174.12	.....
5	Suberone.....	$(CH_2)_6:CO$ .....	112.10	0.969 <sup>9</sup>
6	Suberyl alcohol.....	$(CH_2)_6:CHOH$ .....	114.12	0.9595 <sup>15</sup>
7	Succinamide.....	$NH_2.CO.(CH_2)_2.CONH_2$ .....	116.14	.....
8	Succinic acid.....	$CO_2H.(CH_2)_2.CO_2H$ .....	118.05	1.552
9	anhydride.....	$<(CH_2.CO)_2>O$ .....	100.03	1.1036 <sup>9</sup>
10	Succinimide.....	$<(CH_2.CO)_2>NH+H_2O$ .....	117.10	.....
11	Succinyl chloride.....	$ClCO.(CH_2)_2.COCl$ .....	154.93	1.4123 <sup>18</sup>
12	Sugar (cane).....	$C_{12}H_{22}O_{11}$ .....	342.18	1.588 <sup>20</sup>
13	Sulphamine benzoic ac. (o.).....	$NH_2.SO_2.C_6H_4.CO_2H$ .....	201.16	.....
14	“ “ “ (m.).....	$NH_2.SO_2.C_6H_4.CO_2H$ .....	201.16	.....
15	“ “ “ (p.).....	$NH_2.SO_2.C_6H_4.CO_2H$ .....	201.16	.....
16	Sulphanilic acid (p.).....	$NH_2.C_6H_4.SO_3H+2H_2O$ .....	209.19	.....
17	Sulphoacetic acid.....	$SO_3H.CH_2.CO_2H+1\frac{1}{2}H_2O$ .....	167.12	.....
18	Sulphobenzoic acid (o.).....	$CO_2H.C_6H_4.SO_3H+3H_2O$ .....	256.12	.....
19	“ “ (m.).....	$CO_2H.C_6H_4.SO_3H$ .....	202.16	.....
20	“ “ (p.).....	$CO_2H.C_6H_4.SO_3H$ .....	202.16	.....
21	Sulphocyanic acid.....	$CNSH$ .....	59.11	.....
22	Sulphonol.....	$(CH_3)_2C(SO_2C_2H_5)_2$ .....	228.25	.....
23	Sylvestrene (d.).....	$C_{10}H_{16}$ .....	136.12	0.8510 <sup>16</sup>
24	Talomucic acid (d. or l.).....	$C_6H_{10}O_8$ .....	210.08	.....
25	Tannin.....	$C_{14}H_{10}O_9$ .....	322.08	.....
26	Tartaric acid (i.).....	$CO_2H.[CH(OH)]_2.CO_2H$ + $H_2O$ .....	168.07	1.666
27	“ (d.).....	$CO_2H.[CH(OH)]_2.CO_2H$ .....	150.05	1.764
28	“ (l.).....	$CO_2H.[CH(OH)]_2.CO_2H$ .....	150.05	1.764
29	amide (d.).....	$NH_2.CO.[CH(OH)]_2$ $CONH_2$ .....	148.14	.....
30	Tartronic acid.....	$OHCH(CO_2H)_2+\frac{1}{2}H_2O$ .....	120.03	.....
31	Taurine.....	$NH_2.CH_2.CH_2.SO_3H$ .....	125.16	.....
32	Taurocholic acid.....	$C_{26}H_{45}NSO_7$ .....	515.46	.....
33	Teraconic acid.....	$(CH_3)_2C:C(CO_2H):$ $CH_2.CO_2H$ .....	158.08	.....
34	Terebic acid.....	$C_7H_{10}O_4$ .....	158.08	.....
35	Terephthalic acid (p.).....	$C_6H_4(CO_2H)_2$ .....	166.05	.....
36	aldehyde (p.).....	$C_6H_4(CHO)_2$ .....	134.05	.....
37	nitrile (p.).....	$C_6H_4(CN)_2$ .....	128.11	.....

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	.....	s. sol. hot	s. sol. hot	87.8°	.....	leaflets. ....
2	.....	1.13, 90%	v. soluble	124-5°	306-7°	monoclinic...
3	insol.	∞	∞	.....	146.2°	.....
4	0.142 <sup>15</sup>	.....	0.809	140°	abt. 300°	need. or tabn.
5	.....	.....	.....	.....	179-81° C.	oil. ....
6	.....	.....	.....	.....	184-5° C.	.....
7	0.45 <sup>15</sup>	insol.	insol.	242-3°	.....	needles. ....
8	5.8 <sup>20</sup> ; 28.1 <sup>15</sup>	9.99	1.19 <sup>15</sup>	185°	235°	monoclinic...
9	insol.	soluble	v. s. sol.	119.6°	261°	trimetric/al.
10	v. soluble	mod. sol.	.....	125-6°	287-8°	octah./acet..
11	.....	.....	.....	.....	190-2° C.	.....
12	198.6 <sup>12</sup>	0.4	.....	180° dec.	.....	monoclinic...
13	v. soluble	v. soluble	v. soluble	165-7°	.....	lrg. transp. pri.
14	v. s. sol.	v. soluble	s. soluble	246-7°	.....	scales. ....
15	v. v. s. sol.	v. soluble	.....	dec. 280°	.....	flat pris./w.
16	0.592 <sup>1</sup>	.....	.....	chars.	.....	rhomb. tab..
17	soluble	.....	.....	68-72°	.....	deliq. needle
18	50	v. s. sol.	insol.	130° anhy.	.....	large trimet..
19	deliq.	.....	.....	.....	.....	.....
20	.....	.....	.....	abt. 200°	.....	needles. ....
21	v. soluble	.....	.....	-12.5°	.....	.....
22	2 <sup>15</sup> ; 6.7 <sup>100</sup>	50/abs. <sup>78</sup>	0.75 <sup>15</sup>	125-6°	300° dec.	thick prisms.
23	.....	.....	.....	.....	176-7°	.....[acetone
24	v. soluble	v. sol. hot	.....	158° dec.	.....	v. sm. leaf.
25	v. soluble	s. soluble	insol.	dec. 210°	.....	amorph. pow.
26	125 <sup>15</sup>	.....	.....	140-3° anhy.	.....	rectang. tab.
27	139	v. soluble	insol.	168-70°	.....	monoclinic ..
28	136.6	v. soluble	insol.	170°	.....	monoclinic ..
29	.....	soluble	.....	.....	.....	rhombic. ....
30	v. soluble	v. soluble	s. soluble	185-7° dec.	sub. 110° +	prisms/et. ....
31	6.5 <sup>12</sup>	insol.	insol.	88°	dec.	tetrag. need..
32	soluble	v. soluble	s. soluble	.....	.....	deliq. needles
33	v. soluble	v. soluble	v. soluble	162° dec.	→anhyd.	triclinic. ....
34	s. soluble	soluble	soluble	174°	dec.	mono. /al. ..
35	0.0016	v. v. s. sol.	insol.	no m.p.	sub.	needles. ....
36	1.5 <sup>100</sup>	v. soluble	v. s. sol.	116°	245-8°	fine need./w.
37	.....	s. soluble	s. sol. hot	222°	.....	.....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Terpenol . . . . .	$C_{10}H_{18}O$ . . . . .	154.15	.....
2	Terpentine (pinene) . . . . .	$C_{10}H_{16}$ . . . . .	136.13	0.8587 <sup>20</sup>
3	Terpinene . . . . .	$C_{10}H_{16}$ . . . . .	136.13	0.855
4	Terpineol . . . . .	$C_{10}H_{16} \cdot H_2O$ . . . . .	154.15	0.9357 <sup>20</sup>
5	Terpinolene . . . . .	$C_{10}H_{16}$ . . . . .	136.13	.....
6	Tetrabrom-benzene (s.) . . . . .	1: 2: 4: 5 $C_6H_2Br_4$ . . . . .	393.87	.....
7	“ (as.) . . . . .	1: 3: 4: 5 $C_6H_2Br_4$ . . . . .	393.87	.....
8	-ethane (s.) . . . . .	$CHBr_2 \cdot CHBr_2$ . . . . .	345.86	2.9716 <sup>Y</sup>
9	-ethylene . . . . .	$CBr_2 \cdot CBr_2$ . . . . .	343.84	.....
10	Tetrachlor-aniline . . . . .	2: 3: 4: 5 $NH_2 \cdot C_6HCl_4$ . . . . .	230.87	.....
11	“ . . . . .	2: 3: 5: 6 $NH_2 \cdot C_6HCl_4$ . . . . .	230.87	.....
12	-benzene (s.) . . . . .	1: 2: 4: 5 $CH_2Cl_4$ . . . . .	215.82	1.7344 <sup>10</sup>
13	“ (as.) . . . . .	1: 2: 3: 5 $CH_2Cl_4$ . . . . .	215.82	.....
14	“ (v.) . . . . .	1: 2: 3: 4 $CH_2Cl_4$ . . . . .	215.82	.....
15	-ether . . . . .	$CCl_3 \cdot CHCl \cdot O \cdot C_2H_5$ . . . . .	211.85	1.4182 <sup>15</sup>
16	-ethylene . . . . .	$CCl_2 \cdot CCl_2$ . . . . .	165.80	1.6312 <sup>2,4</sup>
17	-hydroquinone . . . . .	$(OH)_2 \cdot C_6Cl_4$ . . . . .	247.82	.....
18	Tetracosane (n.) . . . . .	$CH_3(CH_2)_{22}CH_3$ . . . . .	338.40	0.7786 <sup>Y</sup>
19	Tetradecane (n.) . . . . .	$CH_3(CH_2)_{12}CH_3$ . . . . .	198.24	0.7645 <sup>Y</sup>
20	Tetradecylene (n.) . . . . .	$CH_3(CH_2)_{11}CH \cdot CH_2$ . . . . .	196.24	0.7745 <sup>Y</sup>
21	Tetraethyl-ammonium hy. . . . .	$(C_2H_5)_4NOH$ . . . . .	147.21	.....
22	-benzene (s.) . . . . .	1: 2: 4: 5 $C_6H_2(C_2H_5)_4$ . . . . .	190.18	.....
23	-silicon . . . . .	$(C_2H_5)_4Si$ . . . . .	144.56	0.7682 <sup>Y</sup>
24	Tetrahydro-benzaldehyde . . . . .	$H \cdot C_6H_5CHO$ . . . . .	110.08	1.0091 <sup>9</sup>
25	-naphthaline (α) . . . . .	$C_{10}H_{12}$ . . . . .	132.10	0.934 <sup>Y</sup>
26	-phthalic acid (Δ') . . . . .	$C_6H_4(CO_2H)_2$ . . . . .	170.08	.....
27	-quinoline . . . . .	$C_9H_{11}N$ . . . . .	133.13	1.0627 <sup>15</sup>
28	-toluene . . . . .	$CH_3 \cdot C_6H_9$ . . . . .	96.10	0.797 <sup>18</sup>
29	-m-xylene . . . . .	$C_6H_4(CH_3)_2$ . . . . .	110.12	0.794 <sup>14</sup>
30	Tetrahydroxy-benzene (s.) . . . . .	1: 2: 4: 5 $C_6H_2(OH)_4$ . . . . .	142.05	.....
31	-benzoic acid . . . . .	2: 3: 4: 5 $(OH)_4 \cdot C_6HCO_2H$ . . . . .	186.05	.....
32	-quinone . . . . .	$O_2 \cdot C_6(OH)_4$ . . . . .	172.03	.....
33	Tetraiodo-ethylene . . . . .	$Cl_2 \cdot Cl_2$ . . . . .	531.88	.....
34	-pyrrol . . . . .	$C_4I_4NH$ . . . . .	570.89	.....
35	Tetramethyl -ammonium hydroxide . . . . .	$(CH_3)_4NOH$ . . . . .	91.15	.....
36	-anthracene . . . . .	$C_{18}H_{18}$ . . . . .	234.15	.....
37	-benzene (s.) . . . . .	1: 2: 4: 5 $C_6H_2(CH_3)_4$ . . . . .	134.12	.....
38	-benzene (as.) . . . . .	1: 2: 3: 5 $C_6H_2(CH_3)_4$ . . . . .	134.12	0.8961 <sup>‡</sup>
39	“ (v.) . . . . .	1: 2: 3: 4 $C_6H_2(CH_3)_4$ . . . . .	134.12	0.8816 <sup>9</sup>
40	-diamino-benzophenone . . . . .	$CO[C_6H_4N(CH_3)_2]_2$ . . . . .	268.24	.....
41	“ -diphenyl-amine . . . . .	$NH[C_6H_4N(CH_3)_2]_2$ . . . . .	255.29	.....



Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	..... sol.	soluble	∞	69–70°	volatile	thick pris./et
2	v. s. sol.	soluble	∞	.....	156°	oil.....
3	.....	.....	.....	.....	179–82°	.....
4	insol.	v. soluble	v. soluble	35°	218°	{ transp. cryst. /et. ....
5	.....	.....	.....	.....	183–5° C.	
6	.....	.....	.....	174–5°	.....	long need./al.
7	.....	v. v. s. sol.	v. soluble	98.5°	329°	fine needles..
8	.....	.....	.....	< –20°	137° <sup>34</sup>	.....
9	.....	.....	.....	53°	.....	tablets.....
10	v. sol. bz.	v. soluble	v. soluble	118°	.....	.....
11	.....	.....	.....	90°	.....	.....
12	mod. sol. CS <sub>2</sub>	s. sol. hot	mod. sol.	137–8°	243–6° C.	moncl./CS <sub>2</sub> ...
13	.....	v. s. sol.	.....	50–1°	246°	needles.....
14	v. sol. CS <sub>2</sub>	s. soluble	v. soluble	45–6°	254°	needles.....
15	.....	.....	.....	.....	189.7° <sup>76</sup>	.....
16	.....	.....	.....	.....	121°	.....
17	insol.	v. soluble	v. soluble	232°	sub. dec.	{ moncl. pris./ /bz.
18	.....	.....	.....	51.1°	243° <sup>15</sup>	
19	.....	.....	.....	5.5°	252.5° C.	.....
20	.....	.....	.....	–12°	240–6°	.....
21	v. deliq.	soluble	.....	dec. 190°	dec.	needles.....
22	.....	.....	.....	13°	250° C.	.....
23	insol.	.....	.....	.....	153°	.....
24	insol.	.....	.....	.....	186–8°	.....
25	.....	.....	.....	.....	abt. 205°	.....
26	v. soluble	.....	.....	120° dec.	.....	leaflets/w....
27	.....	.....	.....	abt. 20°	251°	needles.....
28	.....	.....	.....	.....	105°	.....
29	.....	.....	.....	.....	119°	.....
30	mod. sol.	mod. sol.	v. soluble	215–20°	.....	glit. leaf./ace.
31	.....	insol. lig.	.....	147–8°	.....	cryst./acet. e.
32	s. soluble	v. soluble	s. soluble	no m. p.	.....	bluish cryst..
33	.....	.....	soluble	.....	dec. 165°	prisms.....
34	0.02	5.8 <sup>15</sup> , 90%	50; sol. bz.	no m.p.	dec. 140–50	yel. n./dil. al.
35	v. soluble	.....	.....	.....	dec.	deliq. cryst..
36	.....	.....	.....	abt. 280° d.	.....	.....
37	v. sol. bz.	v. soluble	v. soluble	79–80°	193–5°	moncl. leaf...
38	.....	.....	.....	.....	195–7°	.....
39	.....	.....	.....	–4°	204° C.	.....
40	.....	v. soluble	v. soluble	174° C.	>360° dec.	glit leaflets..
41	.....	soluble	.....	119°	.....	quad.tab./CS

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
	<b>Tetramethyl-diamino</b>			
1	-diphenyl-methane (p.)	$\text{H}_2\text{C}[\text{C}_6\text{H}_4\text{N}(\text{CH}_3)_2]_2$	254.26	
2	-silicon.	$(\text{CH}_3)_2\text{Si}$	88.50	< 1.
3	-triphenyl-methane	$\text{C}_6\text{H}_5\text{CH}[\text{C}_6\text{H}_4\text{N}(\text{CH}_3)_2]_2$	330.29	
4	<b>Tetramethylene-diamine.</b>	$\text{C}_4\text{H}_{12}\text{N}_2$	88.18	
5	-tetra carbonic acid	1, 1, 2, 2 $\text{C}_4\text{H}_4(\text{CO}_2\text{H})_4$	232.06	
6	<b>Tetranitro-methane</b>	$\text{C}(\text{NO}_2)_4$	196.16	
7	-naphthaline ( $\alpha$ ).	$\text{C}_{10}\text{H}_7(\text{NO}_2)_4$	308.19	
8	" ( $\beta$ ).	$\text{C}_{10}\text{H}_7(\text{NO}_2)_4$	308.19	
9	<b>Tetraphenyl-ethane (s.)</b>	$(\text{C}_6\text{H}_5)_2\text{CH}.\text{CH}(\text{C}_6\text{H}_5)_2$	334.18	1.182
10	-ethylene	$(\text{C}_6\text{H}_5)_2\text{C}:\text{C}(\text{C}_6\text{H}_5)_2$	332.16	
11	<b>Tetrolic acid</b>	$\text{CH}_3.\text{C}:\text{C}.\text{CO}_2\text{H}$	84.03	
12	<b>Thallin.</b>	$\text{C}_6\text{H}_{10}\text{NO}.\text{CH}_3$	149.13	
13	<b>Theine (see Caffeine)</b>			
14	<b>Theobromine.</b>	$\text{C}_7\text{H}_7\text{N}_3\text{O}_2$	180.22	
15	<b>Thiazol.</b>	1: 3N(CH) $_2$ S	85.13	1.1998 <sup>17</sup>
16	<b>Thio-acet-amide</b>	$\text{CH}_3.\text{CS}.\text{NH}_2$	75.14	
17	" -anilid	$\text{CH}_3.\text{CS}.\text{NHC}_6\text{H}_5$	151.17	
18	-acetic acid.	$\text{CH}_3.\text{COSH}$	76.09	1.074 <sup>10</sup>
19	-benzoic acid.	$\text{C}_6\text{H}_5.\text{COSH}$	138.10	
20	-carbamic acid	$\text{NH}_2.\text{CS}.\text{SH}$	93.19	
21	-carbanilid.	$\text{CS}(\text{NHC}_6\text{H}_5)_2$	228.24	1.3205 <sup>4</sup>
22	-o-cresole.	$\text{CH}_3.\text{C}_6\text{H}_4.\text{SH}$	124.12	
23	-m.	$\text{CH}_3.\text{C}_6\text{H}_4.\text{SH}$	124.12	
24	-p.	$\text{CH}_3.\text{C}_6\text{H}_4.\text{SH}$	124.12	
25	-cyanuric acid.	$(\text{CNSH})_3$	177.33	
26	-diphenyl amine.	$\text{S} < (\text{C}_6\text{H}_5)_2 > \text{NH}$	199.17	
27	-glycerine	$(\text{OH})_2\text{C}_2\text{H}_5.\text{SH}$	108.12	1.295 <sup>14</sup>
28	-hydroquinone (p.)	$\text{C}_6\text{H}_4(\text{SH})_2$	142.17	
29	-naphthen.	$\text{C}_6\text{H}_5\text{S}$	134.11	
30	- $\alpha$ naphthol.	$\text{C}_{10}\text{H}_7\text{SH}$	160.12	1.1549 <sup>32</sup>
31	- $\beta$ "	$\text{C}_{10}\text{H}_7\text{SH}$	160.12	
32	-oxamide	$\text{NH}_2\text{SC}.\text{CSNH}_2$	120.23	
33	-phene	$< (\text{CH}.\text{CH})_2 > \text{S}$	84.09	1.0705 <sup>3</sup>
34	" (K.)	$< (\text{CH}.\text{CH})_2 > \text{S}$	84.09	1.06 <sup>34</sup>
35	alcohol	$\text{C}_6\text{H}_5\text{S}.\text{CH}_2\text{OH}$	114.11	
36	aldehyde	$\text{C}_6\text{H}_5\text{S}.\text{CHO}$	112.09	1.215 <sup>21</sup>
37	carbonic acid ( $\alpha$ )	$\text{C}_4\text{H}_4\text{S}.\text{CO}_2\text{H}$	128.09	
38	" ( $\beta$ )	$\text{C}_4\text{H}_4\text{S}.\text{CO}_2\text{H}$	128.09	
39	-phenol	$\text{C}_6\text{H}_5.\text{SH}$	110.11	1.0782 <sup>14</sup>
40	-phosgene	$\text{CSCl}_2$	114.96	1.5085 <sup>16</sup>
41	-resorcine	$\text{C}_6\text{H}_4(\text{SH})_2$	142.17	
42	-semicarbizid	$\text{NH}_2.\text{CS}.\text{NH}.\text{NH}_2$	91.22	

\* The crystals from benzene melt at 102°.

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1				90-1°	dist.	leaflets/al....
2	insol.				30-1°	
3	insol.	mod. sol.	v. soluble	*	dist.	tric.n/bz.or al.
4	v. soluble			27-8°	158-60°	leaflets. ....
5	v. soluble	v. soluble	v. soluble	198-203 de.		crystalline...
6	insol.	soluble	soluble	13°	126°	white cryst..
7	v. v. s. sol.	v. v. s. sol.	v. v. s. sol.	259°	exp.	rhomb./chlo.
8				200°	exp.	long thin n./a
9	14 bz.	s. soluble	sol. acet.	209°	379-83° C.	trimet. n./ch.
10		v. s. sol.	v. s. sol.	221°	415-25°	triclinic....
11	v. soluble	v. soluble	v. soluble	76°	203°	tablets. ....
12	v. s. sol.	v. soluble	v. soluble	42-3°	283° <sup>785</sup>	thick trim. pr
13						
14	0.06 <sup>17</sup>	0.007 <sup>20</sup> abs.	0.004 <sup>20</sup>	329-30°	sub. 290° +	rhombic mic.
15					116.8° C.	
16	v. soluble	soluble		107.5-8.5		moncl.tab./et.
17	insol.	sol. KOH		75°	dec.	needles/w...
18	∞	∞	∞	< -17°	93°	
19	insol.	∞	∞	24°		oily
20	v. soluble	v. soluble	v. soluble			needles....
21	insol.	v. soluble	v. soluble	153°	dec.	trimet. tab..
22	insol.	soluble		15°	193°	leaflets. ....
23				< -20.	195-200°	
24	insol.	soluble	v. soluble	43°	190.2-1.7	leaflets/et..
25	v. sol. hot	v. s. sol.	v. s. sol.	no m.p.	dec. 200°	yel. needles..
26	v. sol. bz.	s. soluble	mod. sol.	180°	371° dec.	yel. leaf./al..
27	s. soluble	∞	insol.			thick liquid..
28				98°		hexag. leaf..
29				30-1°		leaflets. ....
30	insol.	v. soluble	v. soluble		285° dec.	
31				81°	286°	glit. scales/al.
32	s. soluble	sol. hot	s. soluble	dec.		yel. red. cryst
33	insol.	soluble	sol. H <sub>2</sub> SO <sub>4</sub>		84° C.	
34	insol.	soluble	∞		83.5-4.5°	colorless ..
35					207° C.	
36					198° C.	oily. ....
37	0.057 <sup>21</sup>	v. soluble	v. soluble	126.5°	260° C. dec	flat need./w..
38	0.443 <sup>17</sup>			136°	with steam	needles/w....
39	insol.	v. soluble	v. soluble		172.5°	
40					73.5°	red. ....
41				27°	243°	crystalline...
42	soluble			181-3°		long need./w

while those from alcohol melt at 93-94°.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Thio-urea . . . . .	$\text{NH}_2\text{CS.NH}_2$ . . . . .	76.17	1.406–1.450
2	Thymol (3: 2: 1) . . . . .	$(\text{CH}_3)_2\text{CH.C}_6\text{H}_3(\text{CH}_3)\text{OH}$ . . . . .	150.12	0.9941 <sup>0</sup>
3	Thymo-quinone . . . . .	$\text{C}_{10}\text{H}_{12}\text{O}_2$ . . . . .	164.10	.....
4	Tiglic acid . . . . .	$\text{CH}_3\text{CH: C(CH}_3\text{).CO}_2\text{H}$ . . . . .	100.06	.....
5	aldehyde . . . . .	$\text{CH}_3\text{CH: C(CH}_3\text{).CHO}$ . . . . .	84.06	0.871 <sup>15</sup>
6	Tin diethyl . . . . .	$\text{Sn(C}_2\text{H}_5)_2$ . . . . .	177.08	1.654
7	tetra-ethyl . . . . .	$\text{Sn(C}_2\text{H}_5)_4$ . . . . .	235.16	1.187 <sup>23</sup>
8	" -methyl . . . . .	$\text{Sn(CH}_3)_4$ . . . . .	179.10	1.3138 <sup>0</sup>
9	triethyl . . . . .	$(\text{C}_2\text{H}_5)_3\text{Sn.Sn(C}_2\text{H}_5)_3$ . . . . .	412.24	1.4115 <sup>0</sup>
10	Tolane . . . . .	$\text{C}_6\text{H}_5\text{C: C.C}_6\text{H}_5$ . . . . .	178.08	.....
11	Toluene . . . . .	$\text{CH}_3\text{.C}_6\text{H}_5$ . . . . .	92.06	0.866 <sup>2</sup>
12	" (K.) . . . . .	$\text{CH}_3\text{.C}_6\text{H}_5$ . . . . .	92.06	0.8625 <sup>11</sup>
13	sulphone-amide (o.) . . . . .	$\text{CH}_3\text{.C}_6\text{H}_4\text{.SO}_2\text{NH}_2$ . . . . .	171.17	.....
14	" " (p.) . . . . .	$\text{CH}_3\text{.C}_6\text{H}_4\text{.SO}_2\text{NH}_2$ . . . . .	171.17	.....
15	" chloride (o.) . . . . .	$\text{CH}_3\text{.C}_6\text{H}_4\text{.SO}_2\text{Cl}$ . . . . .	190.57	.....
16	" " (p.) . . . . .	$\text{CH}_3\text{.C}_6\text{H}_4\text{.SO}_2\text{Cl}$ . . . . .	190.57	.....
17	sulphonic acid (o.) . . . . .	$\text{CH}_3\text{.C}_6\text{H}_4\text{.SO}_3\text{H} + 2\text{H}_2\text{O}$ . . . . .	208.16	.....
18	" " (m.) . . . . .	$\text{CH}_3\text{.C}_6\text{H}_4\text{.SO}_3\text{H} + \text{H}_2\text{O}$ . . . . .	190.14	.....
19	" " (p.) . . . . .	$\text{CH}_3\text{.C}_6\text{H}_4\text{.SO}_3\text{H} + 4\text{H}_2\text{O}$ . . . . .	244.17	.....
20	Toluic acid (o.) . . . . .	$\text{CH}_3\text{.C}_6\text{H}_4\text{.CO}_2\text{H}$ . . . . .	136.06	1.0621 <sup>115</sup>
21	" " (m.) . . . . .	$\text{CH}_3\text{.C}_6\text{H}_4\text{.CO}_2\text{H}$ . . . . .	136.06	1.0543 <sup>42</sup>
22	" " (p.) . . . . .	$\text{CH}_3\text{.C}_6\text{H}_4\text{.CO}_2\text{H}$ . . . . .	136.06	.....
23	amide (o.) . . . . .	$\text{CH}_3\text{.C}_6\text{H}_4\text{.CONH}_2$ . . . . .	135.11	.....
24	" " (m.) . . . . .	$\text{CH}_3\text{.C}_6\text{H}_4\text{.CONH}_2$ . . . . .	135.11	.....
25	" " (p.) . . . . .	$\text{CH}_3\text{.C}_6\text{H}_4\text{.CONH}_2$ . . . . .	135.11	.....
26	anhydride (o.) . . . . .	$(\text{CH}_3\text{.C}_6\text{H}_4\text{.CO})_2\text{O}$ . . . . .	254.11	.....
27	Toluidine (o.) . . . . .	$\text{CH}_3\text{.C}_6\text{H}_4\text{.NH}_2$ . . . . .	107.11	1.003 <sup>20</sup>
28	" (K.) . . . . .	$\text{CH}_3\text{.C}_6\text{H}_4\text{.NH}_2$ . . . . .	107.11	0.996 <sup>11</sup>
29	" " (m.) . . . . .	$\text{CH}_3\text{.C}_6\text{H}_4\text{.NH}_2$ . . . . .	107.11	0.998 <sup>25</sup>
30	" " (p.) . . . . .	$\text{CH}_3\text{.C}_6\text{H}_4\text{.NH}_2$ . . . . .	107.11	1.046
31	Tolyl carbinol (o.) . . . . .	$\text{CH}_3\text{.C}_6\text{H}_4\text{.CH}_2\text{OH}$ . . . . .	122.08	1.023 <sup>40</sup>
32	" " (m.) . . . . .	$\text{CH}_3\text{.C}_6\text{H}_4\text{.CH}_2\text{OH}$ . . . . .	122.08	1.036
33	" " (p.) . . . . .	$\text{CH}_3\text{.C}_6\text{H}_4\text{.CH}_2\text{OH}$ . . . . .	122.08	.....
34	chloride (o.) . . . . .	$\text{CH}_3\text{.C}_6\text{H}_4\text{.CH}_2\text{Cl}$ . . . . .	140.52	.....
35	" " (m.) . . . . .	$\text{CH}_3\text{.C}_6\text{H}_4\text{.CH}_2\text{Cl}$ . . . . .	140.52	.....
36	" " (p.) . . . . .	$\text{CH}_3\text{.C}_6\text{H}_4\text{.CH}_2\text{Cl}$ . . . . .	140.52	.....
37	Tolylene alcohol (o.) . . . . .	$\text{C}_6\text{H}_4(\text{CH}_2\text{OH})_2$ . . . . .	138.08	.....
38	" " (m.) . . . . .	$\text{C}_6\text{H}_4(\text{CH}_2\text{OH})_2$ . . . . .	138.08	1.161 <sup>18</sup>
39	" " (p.) . . . . .	$\text{C}_6\text{H}_4(\text{CH}_2\text{OH})_2$ . . . . .	138.08	.....
40	chloride (o.) . . . . .	$\text{C}_6\text{H}_4(\text{CH}_2\text{Cl})_2$ . . . . .	174.96	1.393 <sup>0</sup>
41	" " (m.) . . . . .	$\text{C}_6\text{H}_4(\text{CH}_2\text{Cl})_2$ . . . . .	174.96	1.302 <sup>20</sup>
42	" " (p.) . . . . .	$\text{C}_6\text{H}_4(\text{CH}_2\text{Cl})_2$ . . . . .	174.96	1.417 <sup>0</sup>

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
19		v. s. sol.	v. s. sol.	180°		thick rhb. pri.
20	0.083 <sup>15</sup>	v. soluble	v. soluble	49.6°-51.5	231.8°	hexag. or mo.
3	v. s. sol.	v. soluble	v. soluble	45.5°	232°	or. yel. tab...
4	s. soluble	soluble	soluble	64.5°	198.5°	triclinic. ....
5	2	∞	∞		116.6° C.	
6	insol.	soluble			dec.	oily. ....
7	insol.				181°	
8					78°	
9	insol.	insol.			256-70° de.	
10		v. sol. hot	v. soluble	60°	275-300°	leaf. or pris/al.
11	insol.	s. soluble	soluble		111.0°	
12	v. v. s. sol.	soluble	∞	-93.2°	110-1°	colorless. ....
13	0.105 <sup>9</sup>	3.6 <sup>8</sup>		155°		octahedral...
14	0.19	7.5 <sup>8</sup>		137°		leaflets. ....
15	insol.					oily. ....
16	insol.		soluble	69°	145-6° <sup>15</sup>	rhombic. ....
17						crystalline...
18						needles. ....
19				92°		leaf. or pris..
20	s. soluble	v. soluble		102°	259°	long need./w.
21	1.7 <sup>100</sup>	v. soluble	v. soluble	110.5°	263°	prisms/w....
22	s. soluble	v. soluble	v. soluble	176-7°	275° C.	needles. ....
23	soluble	v. soluble	v. soluble	142.8° C.		
24	s. soluble			94.0° C.		
25	s. soluble	v. soluble	s. soluble	160.8° C.		need. or tab./.
26				36-7°	abt. 325°	crys./et. or bz.
27				< -20°	197°	
28	s. soluble	soluble	∞		199-200°	usually yel...
29				< -13°	202-5°	
30	0.35 <sup>11</sup>			45°	198°	leaflets/al...
31	1 <sup>20</sup> ; 115 <sup>100</sup>	v. soluble	v. soluble	34°	223° C. <sup>750</sup>	needles. ....
32	5			< -20°	217°	
33	v. s. sol.	v. soluble	v. soluble	58.5-9.5°	217°	needles. ....
34					197-9°	
35					195-6°	
36					192°	
37	v. soluble	v. soluble	25 <sup>18</sup>	64.2-4.8°		tablets/et....
38	v. soluble		soluble	46-7°		crystalline...
39	v. soluble	v. soluble	v. soluble	112-3°		needles. ....
40	v. sol. chlo.	v. soluble	v. soluble	54.6-4.8°	239-41°	crystalline ..
41				34.2°	250-5°	crystalline ..
42				100°	240-50 dec.	rhb. tab./al.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Tricetamide.....	$(\text{CH}_3\text{CO})_3\text{N}$ .....	143.11	.....
2	Triacetin.....	$(\text{C}_2\text{H}_5\text{O})_2\text{C}_2\text{H}_5$ .....	218.12	1.1606 <sup>††</sup>
3	" (K.).....	$(\text{C}_2\text{H}_5\text{O})_2\text{C}_2\text{H}_5$ .....	218.12	1.159 <sup>††</sup>
4	Triamino-azo-benzene (3, 2', 4').....	$\text{NH}_2\text{C}_6\text{H}_4\text{N}_2\text{C}_6\text{H}_5$ $(\text{NH}_2)_2$ .....	227.11	.....
5	-benzene (1, 2, 3).....	$\text{C}_6\text{H}_5(\text{NH}_2)_3$ .....	123.19	.....
6	" (1, 2, 4).....	$\text{C}_6\text{H}_5(\text{NH}_2)_3$ .....	123.19	.....
7	-phenol (2, 4, 6).....	$\text{OH.C}_6\text{H}_3(\text{NH}_2)_3$ .....	139.19	.....
8	Triazobenzene.....	$\text{C}_6\text{H}_5\text{N}:\text{N}_2$ .....	119.16	1.0980 <sup>10</sup>
9	Tribenzylamine.....	$(\text{C}_6\text{H}_5\text{CH}_2)_3\text{N}$ .....	287.21	.....
10	Tribrom-acetic acid.....	$\text{CBr}_3\text{CO}_2\text{H}$ .....	296.89	.....
11	-benzene (s.).....	1: 3: $5\text{C}_6\text{H}_3\text{Br}_3$ .....	314.91	.....
12	" (as.).....	1: 3: $4\text{C}_6\text{H}_3\text{Br}_3$ .....	314.91	.....
13	" (v.).....	1: 2: $3\text{C}_6\text{H}_3\text{Br}_3$ .....	314.91	.....
14	-hydrine.....	$\text{CH}_2\text{Br.CHBr.CH}_2\text{Br}$ .....	280.89	2.436 <sup>23</sup>
15	-phenol (s.).....	2: 4: $6\text{OH.C}_6\text{H}_2\text{Br}_3$ .....	330.91	.....
16	-resorcine.....	$(\text{OH})_2\text{C}_6\text{H}_3\text{Br}_3$ .....	346.91	.....
17	Tributyl amine.....	$(\text{C}_4\text{H}_9)_3\text{N}$ .....	185.26	0.7782 <sup>20</sup>
18	Tricarballic acid.....	$\text{CO}_2\text{H.CH}(\text{CH}_2\text{CO}_2\text{H})_2$ .....	176.06	.....
19	Tricarboxy phenol (1, 3, 5).....	$\text{OH.C}_6\text{H}_2(\text{CO}_2\text{H})_3 + \text{H}_2\text{O}$ .....	226.05	.....
20	Trichlor-acetal.....	$\text{CHCl}_2.\text{CCl}(\text{OC}_2\text{H}_5)_2$ .....	221.44	.....
21	".....	$\text{CCl}_3.\text{CH}(\text{OC}_2\text{H}_5)_2$ .....	221.44	1.288
22	-acetamide.....	$\text{CCl}_3.\text{CONH}_2$ .....	162.41	.....
23	-acetic acid.....	$\text{CCl}_3.\text{CO}_2\text{H}$ .....	163.36	1.6298 <sup>61</sup>
24	-benzene (s.).....	1: 3: $5\text{C}_6\text{H}_3\text{Cl}_3$ .....	181.38	.....
25	" (as.).....	1: 3: $4\text{C}_6\text{H}_3\text{Cl}_3$ .....	181.38	1.574 <sup>10</sup>
26	" (v.).....	1: 2: $3\text{C}_6\text{H}_3\text{Cl}_3$ .....	181.38	[liq. 1.4658 <sup>10</sup>
27	benzoic acid.....	2: 4: $5\text{Cl}_2\text{C}_6\text{H}_2.\text{CO}_2\text{H}$ .....	225.38	.....
28	".....	2: 3: $4\text{Cl}_2\text{C}_6\text{H}_2.\text{CO}_2\text{H}$ .....	225.38	.....
29	".....	3: 4: $5\text{Cl}_2\text{C}_6\text{H}_2.\text{CO}_2\text{H}$ .....	225.38	.....
30	-bromethane.....	$\text{Cl}_3\text{CBr}$ .....	198.31	2.0550 <sup>‡</sup>
31	-ethane (1, 1, 1).....	$\text{CCl}_3.\text{CH}_3$ .....	133.38	1.3249 <sup>‡</sup>
32	" (1, 2, 2).....	$\text{CH}_2\text{Cl.CHCl}_2$ .....	133.38	1.4784 <sup>9</sup>
33	ethyl-alcohol.....	$\text{CCl}_3.\text{CH}_2\text{OH}$ .....	149.38	1.5500 <sup>23</sup>
34	-ethylene.....	$\text{CHCl}:\text{CCl}$ .....	131.36	.....
35	-hydrine.....	$\text{OH}_2\text{Cl.CHCl.CH}_2\text{Cl}$ .....	147.39	1.417 <sup>‡</sup>
36	-hydroquinone.....	$\text{Cl}_3\text{C}_6\text{H}(\text{OH})_2$ .....	213.38	.....
37	-phenol.....	$\text{Cl}_3\text{C}_6\text{H}_2\text{OH}$ .....	197.38	.....
38	-phenol.....	$\text{Cl}_3\text{C}_6\text{H}_2\text{OH}$ .....	197.38	.....

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	.....	.....	soluble	78-9°	.....	sm. need./et.
2	s. soluble	∞	∞	.....	258-9°	.....
3	.....	∞	∞	.....	266-7° dec.	colorless ....
4	s. sol. hot	v. soluble	v. soluble	143.5°	.....	red. moncl. ... tab./w....
5	v. soluble	v. soluble	v. soluble	103°	336° C.	crystalline...
6	v. soluble	v. soluble	s. soluble	<100°	abt. 340°	leaf./chlo ...
7	.....	.....	.....	.....	257°	needles.....
8	insol.	s. soluble	s. soluble	.....	73.5 <sup>22-4</sup>	yellow oil....
9	v. s. sol.	s. soluble	v. soluble	91.3°	.....	moncl.leaf./al.
10	v. soluble	v. soluble	v. soluble	135°	245°	moncl. tab. .
11	.....	s. sol. hot	.....	119.6°	278°	needles.....
12	.....	s. soluble	.....	44°	275-6°	needles. [/al.
13	.....	.....	.....	87.4°	.....	large rhb. tab.
14	.....	.....	.....	16-7°	219-21°	prisms
15	0.007 <sup>15</sup>	v. soluble	.....	95°	sub.	long needles .
16	v. s. sol.	v. soluble	.....	111°	.....	small need....
17	.....	.....	.....	.....	211-5° C. <sup>740</sup>	.....
18	40.52 <sup>14</sup>	v. soluble	s. soluble	116°	sub. dec.	rhombic.....
19	0.5 <sup>10</sup>	v. sol. hot	s. soluble	.....	dec. 180°	warts .....
20	.....	soluble	.....	83°	230° dec.	moncl. n./al.
21	0.5	∞	∞; ∞ glyc.	.....	197°	.....
22	v. s. sol.	v. soluble	v. v. sol.	141°	233-9°	mncl. tab./w.
23	v. soluble	soluble	soluble	57°	195°	rhomohedral.
24	.....	.....	.....	63.40	208.5°C. <sup>784</sup>	long needles.
25	.....	.....	.....	16°	213°	.....
26	.....	s. soluble	.....	53-4°	218-9°	large tab./al.
27	v. v. s. sol.	v. soluble	.....	163°	sub.	sm. need./w.
28	mod. sol.	.....	.....	129°	.....	needles.....
29	v. v. s. sol.	v. soluble	v. soluble	203°	sub.	needles/al....
30	.....	.....	.....	.....	104.07° C.	.....
31	.....	.....	.....	.....	74.5°	.....
32	.....	.....	.....	.....	114°	.....
33	s. soluble	∞	∞	17.8°	151° <sup>0737</sup>	rhomb. tab. .
34	.....	.....	.....	.....	88°	.....
35	.....	.....	.....	.....	158°	.....
36	0.6 <sup>18</sup>	v. soluble	v. soluble	134°	sub. leaf.	large prisms.
37	0.051 <sup>11</sup> ; 0.243 <sup>98</sup>	v. v. sol.	v. v. sol.	67-8°	243.5-4.5°	rhomb. pris. .
38	sol. hot	v. soluble	v. sol.; v. sol. lig.	53-4°	252-3°	long need./al.

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Trichlor-quinone.....	$\text{Cl}_3\text{C}_6\text{H}_2\text{O}_2$ .....	211.36	.....
2	Tricosane (n.).....	$\text{CH}_3(\text{CH}_2)_{21}\text{CH}_3$ .....	324.38	0.7785 <sup>4</sup>
3	Tricyan-ethane.....	$\text{CH}_3\text{C}(\text{CN})_3$ .....	105.15	.....
4	Tridecane.....	$\text{CH}_3(\text{CH}_2)_{11}\text{CH}_3$ .....	184.24	0.7608 <sup>4</sup>
5	Tridecylene.....	$\text{C}_{13}\text{H}_{26}$ .....	182.22	0.8445 <sup>0</sup>
6	Triethyl amine.....	$(\text{C}_2\text{H}_5)_3\text{N}$ .....	101.16	0.735 <sup>15</sup>
7	arsine.....	$(\text{C}_2\text{H}_5)_3\text{As}$ .....	162.12	1.151 <sup>17</sup>
8	benzene (s.).....	1: 3: $5\text{C}_6\text{H}_3(\text{C}_2\text{H}_5)_3$ .....	162.15	.....
9	borate.....	$(\text{C}_2\text{H}_5)_3\text{BO}_3$ .....	146.12	0.8863 <sup>3</sup>
10	boride.....	$(\text{C}_2\text{H}_5)_3\text{B}$ .....	98.12	0.6961 <sup>23</sup>
11	carbinol.....	$(\text{C}_2\text{H}_5)_3\text{COH}$ .....	116.12	0.8402 <sup>20</sup>
12	phosphine.....	$(\text{C}_2\text{H}_5)_3\text{P}$ .....	118.12	0.812 <sup>15</sup>
13	phosphite.....	$(\text{C}_2\text{H}_5)_3\text{PO}_3$ .....	166.12	1.075
14	silicol.....	$(\text{C}_2\text{H}_5)_3\text{SiOH}$ .....	132.53	0.8709 <sup>0</sup>
15	" ether.....	$(\text{C}_2\text{H}_5)_3\text{SiOC}_2\text{H}_5$ .....	160.56	0.8403 <sup>4</sup>
16	silicon hydride.....	$(\text{C}_2\text{H}_5)_3\text{SiH}$ .....	116.53	0.7510 <sup>0</sup>
17	" oxide.....	$[(\text{C}_2\text{H}_5)_3\text{Si}]_2\text{O}$ .....	247.04	0.8590 <sup>0</sup>
18	Trihydroxy-benzene (as.)	1: 2: $4\text{C}_6\text{H}_3(\text{OH})_3$ .....	126.05	.....
19	-benzoic acid.....	2: 3: $4(\text{OH})_3\text{C}_6\text{H}_2\text{CO}_2\text{H}$ .....	170.05	.....
20	-butane (1, 2, 3).....	$\text{CH}_3(\text{CHOH})_2\text{CH}_2\text{OH}$ .....	106.08	1.2324 <sup>17</sup>
21	-pyridine (s.).....	2: 4: $6(\text{OH})_3\text{C}_5\text{H}_2\text{N}$ .....	127.08	.....
22	Triiodo-acetic acid.....	$\text{Cl}_3\text{CO}_2\text{H}$ .....	183.98	.....
23	-benzene (as.).....	1: 2: $4\text{C}_6\text{H}_3\text{I}_3$ .....	455.94	.....
24	Trimellitic acid.....	1: 2: $4\text{C}_6\text{H}_3(\text{CO}_2\text{H})_3$ .....	210.05	.....
25	Trimesic acid (s.).....	1: 3: $5\text{C}_6\text{H}_3(\text{CO}_2\text{H})_3$ .....	210.05	.....
26	Trimethyl acetic acid.....	$(\text{CH}_3)_3\text{C.CO}_2\text{H}$ .....	102.08	0.905 <sup>50</sup>
27	amine.....	$(\text{CH}_3)_3\text{N}$ .....	59.11	0.662 <sup>-5</sup>
28	" (K.).....	$(\text{CH}_3)_3\text{N}$ .....	59.11	0.662 <sup>-5.2</sup>
29	anthracene.....	1: 2: $4(\text{CH}_3)_3\text{C}_{14}\text{H}_7$ .....	220.13	.....
30	".....	1: 3: $6(\text{CH}_3)_3\text{C}_{14}\text{H}_7$ .....	220.13	.....
31	".....	1: 4: $6(\text{CH}_3)_3\text{C}_{14}\text{H}_7$ .....	220.13	.....
32	arsine.....	$(\text{CH}_3)_3\text{As}$ .....	120.07	.....
33	benzoic acid.....	2: 4: $5(\text{CH}_3)_3\text{C}_6\text{H}_2\text{CO}_2\text{H}$ .....	164.10	.....
34	bismuth.....	$(\text{CH}_3)_3\text{Bi}$ .....	253.57	2.30 <sup>18</sup>
35	boride.....	$(\text{CH}_3)_3\text{B}$ .....	56.07	1.9108
36	-butene (3) (2, 2, 3) ..	$(\text{CH}_3)_3\text{C.C}(\text{CH}_3):\text{CH}_2$ .....	98.12	.....
37	carbinol.....	$(\text{CH}_3)_3\text{C.OH}$ .....	74.08	0.7864 <sup>4</sup>
38	-butyl alcohol (2, 3, 3)	$(\text{CH}_3)_3\text{C.COH}(\text{CH}_2)_2$ .....	116.13	.....
39	citrate.....	$(\text{CH}_3)_3\text{C}_6\text{H}_5\text{O}_7$ .....	234.12	.....
40	phosphate.....	$(\text{CH}_3)_3\text{PO}_4$ .....	140.07	1.2195 <sup>15</sup>
41	phosphine.....	$(\text{CH}_3)_3\text{P}$ .....	76.07	> 1.



Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	insol.	s. soluble	v. soluble	165-6°	.....	large yel. leaf.
2	.....	s. soluble	soluble	47.7°	234° <sup>015</sup>	glit. leaf./al. + et.....
3	.....	v. soluble	v. soluble	93.5°	volatile	pale y. need.
4	.....	.....	.....	-6.2°	234°	.....
5	.....	.....	.....	.....	232.7° C.	.....
6	s. soluble	soluble	.....	.....	89°	.....
7	insol.	.....	.....	.....	140° <sup>0736</sup> dec.	.....
8	.....	.....	.....	.....	214-8°	.....
9	.....	.....	.....	.....	119.5°	.....
10	.....	soluble	soluble	.....	95°	.....
11	s. soluble	soluble	soluble	.....	140-2°	.....
12	insol.	soluble	soluble	.....	127° <sup>0744</sup>	.....
13	.....	soluble	soluble	.....	191°	.....
14	insol.	.....	.....	.....	154°	.....
15	insol.	sol. H <sub>2</sub> SO <sub>4</sub>	.....	.....	153°	.....
16	insol.	.....	.....	.....	107°	.....
17	.....	sol. H <sub>2</sub> SO <sub>4</sub>	.....	.....	231°	.....
18	v. soluble	v. soluble	v. v. sol.	140.5°	with steam	mncl. leaf./et.
19	0.13 <sup>12</sup>	soluble	v. soluble	d.195-200°	.....	silky need./w.
20	soluble	∞	∞	.....	134-6° <sup>028</sup>	.....
21	mod. sol.	.....	.....	220-30°	.....	micro. cryst..
22	.....	.....	.....	150° dec.	.....	glit. yel. leaf.
23	.....	soluble	.....	76°	sub.	small needles
24	mod. sol.	.....	mod. sol.	216° dec.	.....	crusts.....
25	0.38 <sup>16</sup>	v. soluble	mod. sol.	345-50°	sub. 300°+	prisms/w....
26	2.2 <sup>30</sup>	∞	v. soluble	35.3-.5°	163.7° C.	regular.....
27	v. soluble	v. soluble	.....	.....	3.2-3.8°	.....
28	v. soluble	v. soluble	soluble	.....	3.2-3.8°	colorless....
29	.....	.....	.....	243°	.....	.....
30	sol. bz.	s. soluble	soluble	222°	.....	.....
31	sol. bz.	v. s. sol.	mod. sol.	227°	sub.	fluoresc. leaf.
32	s. soluble	.....	.....	.....	<100°	.....
33	v. s. sol. hot	v. soluble	v. soluble	149-50°	with steam	1" need./bz..
34	.....	.....	.....	.....	110°	.....
35	.....	.....	.....	.....	.....	gas.....
36	.....	.....	.....	.....	78-80°	.....
37	deliq.	.....	.....	25°	82.94° C.	rhomb. tab...
38	→hydrate.	.....	.....	17°	131°	crystalline...
39	.....	.....	.....	78.5-9°	283-7° dec.	triclinic.....
40	.....	soluble	soluble	.....	197.2° C.	.....
41	insol.	.....	.....	.....	40-2°	.....

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (Δ).
1	Trimethylene.....	$\text{CH}_2 < (\text{CH}_2)_2 >$ .....	42.05	.....
2	bromide.....	$\text{CH}_2\text{Br}.\text{CH}_2.\text{CH}_2\text{Br}$ .....	201.97	1.9736 <sup>17</sup>
3	-carbonic acid.....	$\text{C}_3\text{H}_5.\text{CO}_2\text{H}$ .....	86.05	1.0879 <sup>9</sup>
4	-dicarbonic acid (1, 2)	$\text{C}_3\text{H}_4(\text{CO}_2\text{H})_2$ .....	130.05	.....
5	Trinitro-benzene (s.)....	1: 3: 5 $\text{C}_6\text{H}_3(\text{NO}_2)_3$ .....	213.15	.....
6	-cyan methane.....	$(\text{NO}_2)_3\text{CCN}$ .....	176.16	.....
7	naphthalene (α).....	$\text{C}_{10}\text{H}_5(\text{NO}_2)_3$ .....	263.16	.....
8	“ (β).....	$\text{C}_{10}\text{H}_5(\text{NO}_2)_3$ .....	263.16	.....
9	“ (γ).....	$\text{C}_{10}\text{H}_5(\text{NO}_2)_2$ .....	263.16	.....
10	-phenol (s.).....	$(\text{NO}_2)_3\text{C}_6\text{H}_2.\text{OH}$ .....	229.15	see picric ac.
11	“ (2, 3, 6).....	$(\text{NO}_2)_3\text{C}_6\text{H}_2.\text{OH}$ .....	229.15	.....
12	“ (3, 4, 6).....	$(\text{NO}_2)_3\text{C}_6\text{H}_2.\text{OH}$ .....	229.15	.....
13	-toluene (s.).....	2: 4: 6 $(\text{NO}_2)_3\text{C}_6\text{H}_2.\text{CH}_3$ .....	227.16	.....
14	-triphenyl methane.....	$(\text{NO}_2.\text{C}_6\text{H}_4)_3\text{CH}$ .....	379.23	.....
15	Trioxymethylene (α)....	$\text{C}_3\text{H}_5\text{O}_3$ .....	90.05	.....
16	Tripalmitin.....	$\text{C}_3\text{H}_5(\text{C}_{16}\text{H}_{31}\text{O}_2)_3$ .....	806.78	0.8657 <sup>9</sup>
17	Triphenyl amine.....	$(\text{C}_6\text{H}_5)_3\text{N}$ .....	245.16	.....
18	benzene (s.).....	1: 3: 5 $\text{C}_6\text{H}_3(\text{C}_6\text{H}_5)_3$ .....	306.15	1.2055
19	carbinol.....	$(\text{C}_6\text{H}_5)_3\text{COH}$ .....	260.13	.....
20	ethane (s.).....	$\text{C}_6\text{H}_5.\text{CH}_2.\text{CH}(\text{C}_6\text{H}_5)_2$ .....	258.15	.....
21	guanidine (α).....	$\text{C}_6\text{H}_5.\text{N}:\text{C}(\text{NHC}_6\text{H}_5)_2$ .....	287.26	.....
22	“ (β).....	$\text{HN}:\text{C}(\text{NHC}_6\text{H}_5)_2$ .....	287.26	.....
23	methane.....	$(\text{C}_6\text{H}_5)_3\text{CH}$ .....	244.13	.....
24	phosphine.....	$(\text{C}_6\text{H}_5)_3\text{P}$ .....	262.12	1.194
25	Tripropyl amine (K.)....	$(\text{CH}_3.\text{CH}_2.\text{CH}_2)_3\text{N}$ .....	143.21	0.750 <sup>11</sup>
26	Tristearin.....	$\text{C}_3\text{H}_5(\text{C}_{18}\text{H}_{35}\text{O}_2)_3$ .....	826.88	0.8621 <sup>9</sup>
27	Trithio-aldehyde.....	$(\text{CH}_3\text{CSH})_3$ .....	180.28	.....
28	“ (a.).....	$(\text{CH}_3\text{CSH})_3$ .....	180.28	.....
29	-carbonic acid.....	$\text{CS}(\text{SH})_2$ .....	110.20	.....
30	-glycerine.....	$\text{CH}_2\text{SH}.\text{CHSH}.\text{CH}_2\text{SH}$ .....	140.24	1.391 <sup>14</sup>
31	Tyrosin.....	$\text{OHC}_6\text{H}_4.\text{CH}_2.\text{CH}(\text{NH}_2).\text{CO}_2\text{H}$ .....	181.18	1.456
32	Undecane (n.).....	$\text{CH}_3(\text{CH}_2)_9\text{CH}_3$ .....	156.20	0.7448 <sup>15</sup>
33	Undecylene.....	$\text{C}_{11}\text{H}_{22}$ .....	154.18	0.7909 <sup>9</sup>
34	Undecylic acid.....	$\text{CH}_3(\text{CH}_2)_9\text{CO}_2\text{H}$ .....	186.18	.....
35	Uramil (murexan).....	$\text{CO} < (\text{NH}.\text{CO})_2 > \text{CHNH}_2$ .....	143.16	.....
36	Urea.....	$\text{CO}(\text{NH}_2)_2$ .....	60.11	1.323
37	Urethane.....	$\text{NH}_2\text{CO}_2.\text{C}_6\text{H}_5$ .....	89.10	0.9862 <sup>21</sup>
38	Uric acid.....	$\text{C}_5\text{H}_4\text{N}_4\text{O}_3$ .....	168.19	1.855-1.893
39	Usnic acid (α).....	$\text{C}_{18}\text{H}_{16}\text{O}_7$ .....	344.13	.....

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	.....	.....	.....	-126°	-35° <sup>7</sup>	.....
2	.....	.....	.....	.....	165° C.	.....
3	s. soluble	.....	.....	18-19°	182-4°	.....
4	20	.....	soluble	175°	210° <sup>30</sup>	needles/et. .
5	s. sol. hot	1.9 <sup>16</sup>	v. soluble	121.2°	dec.	rhb. tab. /als
6	dec.	dec.	soluble	41.5°	exp. 220°	camphor.mas.
7	v. sol. acet.	v. soluble	v. sol. chlo.	122°	.....	monoclinic...
8	v.s.sol. chlo.	0.046; 23 <sup>88</sup> %	v. s. sol.	218°	.....	monocl./chol.
9	0.64 chlo.	0.122 <sup>80</sup> %	0.39	147°	.....	glit. yel. leaf.
10	.....	.....	.....	.....	.....	.....
11	mod.sol. hot	v. soluble	v. soluble	117-8°	.....	small need...
12	mod.sol. hot	v. soluble	v. soluble	96°	.....	glit.n.or scales
13	0.386 <sup>17</sup> CS <sub>2</sub>	v. sol. hot	.....	82°	.....	rhombic....
14	sol. bz.	.....	v. s. sol.	206-7°	.....	cryst./bz
15	soluble	soluble	soluble	60-1°	sub.	needles .....
16	.....	0.0043 <sup>21</sup> abs.	v. soluble	65.1°	.....	irreg. cryst...
17	mod. sol.bz.	s. soluble	sol. acet.	127°	.....	mncl. pris./et
18	sol. bz.	s. soluble	s. soluble	169-70°	dist.	rhb. tab. /et.
19	sol. bz.	v. soluble	v. soluble	162°	360°+	hexag./bz....
20	.....	insol.	v. soluble	.....	396-400°	.....
21	insol.	4.6°	.....	143°	dec.	rhb. pris./al..
22	v. s. sol.	v. soluble	v. soluble	131°	.....	regular tab...
23	sol. bz. hot	s. soluble	v. soluble	92°	358-9° <sup>74</sup>	rhombic....
24	insol.	mod. sol.	v. soluble	79°	>360°	mncl. tab./et.
25	s. soluble	∞	soluble	.....	154.5-6.5°	colorless....
26	.....	v. s. sol.	.....	71.6°	dist. in vac.	cryst. ....
27	insol.	soluble	soluble	45-6°	205°	rhomb. need.
28	.....	.....	.....	101°	246-7°	long prisms. .
29	insol.	sol. Na <sub>2</sub> CO <sub>3</sub>	.....	.....	.....	red. brown oil
30	insol.	mod. sol.	insol.	.....	.....	.....
31	0.04 <sup>20</sup>	0.01 <sup>17</sup>	insol.	235°	.....	silky needles.
32	.....	.....	.....	-25.6°	194.5° C.	.....
33	.....	.....	.....	.....	195.4° C.	.....
34	insol.	v. soluble	.....	28.5°	212.5° <sup>100</sup>	scales .....
35	insol.	sol. NH <sub>3</sub>	.....	.....	.....	needles .....
36	100	5.06	s. soluble	132°	dec.	quadratic....
37	v. soluble	v. soluble	v. soluble	49-50°	180°	leaflets. ....
38	0.007	insol.	insol.	dec.	dec.	scales .....
39	insol.	v. s. sol.	s. soluble	195-6°	dec.	yel. pris./al. .

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Usnic acid ( $\beta$ )	$C_{18}H_{16}O_7$	344.13	
2	Uvic acid	$(CH_2)_2C_6H_4O.CO_2H$	140.06	
3	Uvitic acid 1: 3: 5	$CH_3.C_6H_3(CO_2H)_2$	180.06	
4	Valeric acid n. (K.)	$CH_3(CH_2)_3CO_2H$	102.08	0.937 <sup>††</sup>
5	Vanillic acid 3: 4: 1	$CH_3O.C_6H_3(OH)CO_2H$	168.06	
6	alcohol 3: 4: 1	$CH_3O.C_6H_3(OH)CH_2OH$	154.08	
7	Vanilline 3: 4: 1	$CH_3O.C_6H_3(OH)CHO$	152.06	
8	Valeric acid (n.)	$CH_3(CH_2)_3CO_2H$	102.08	0.9415 <sup>20</sup>
9	aldehyde	$CH_3(CH_2)_3CHO$	86.08	0.8185 <sup>11</sup>
10	anhydride	$(C_4H_8O)_2O$	186.15	0.927 <sup>Y</sup>
11	Valerylene	$CH_3.C \equiv C.CH_2.CH_3$	68.06	
12	Valylene	$CH_2.C(CH_3).C.CH$	66.05	
13	Veratrol (K.)	$C_6H_4(OCH_2)_2$	138.08	1.084 <sup>††</sup>
14	Vesuvine	$NH_2.C_6H_4.N_2.C_6H_3(NH_2)_2$	227.11	
15	Vinyl amine	$CH_2.CH.NH_2$	43.08	
16	bromide	$CH_2.CHBr$	106.99	1.5167 <sup>14</sup>
17	chloride	$CH_2.CHCl$	62.48	
18	ether	$(CH_2.CH)_2O$	70.05	
19	ethyl carbinol	$C_2H_5.CH(OH).C_2H_5$	86.08	0.840 <sup>Y</sup>
20	" ether	$C_2H_5O.C_2H_5$	72.06	0.7625 <sup>††</sup>
21	sulphide	$(CH_2.CH)_2S$	86.11	0.9125
22	Wood alcohol	(see methyl alcohol)		
23	Xanthene	$C_{12}H_{10}O$	182.08	
24	Xanthine	$C_5H_4N_4O_2$	152.19	
25	Xanthone	$CO < (C_6H_4)_2 > CO$	196.06	
26	Xylene (o.)	$C_6H_4(CH_3)_2$	106.08	0.8932 <sup>0</sup>
27	" (K.)	$C_6H_4(CH_3)_2$	106.08	0.876 <sup>††</sup>
28	" (m.)	$C_6H_4(CH_3)_2$	106.08	0.866 <sup>Y</sup>
29	" (K.)	$C_6H_4(CH_3)_2$	106.08	0.863 <sup>††</sup>
30	" (p.)	$C_6H_4(CH_3)_2$	106.08	0.8801 <sup>0</sup>
31	" (K.)	$C_6H_4(CH_3)_2$	106.08	0.859 <sup>††</sup>
32	" com'l pure (K.)	$C_6H_4(CH_3)_2$	106.08	0.861 <sup>††</sup>
33	sulphonic ac. (4) (1, 2)	$(CH_2)_2C_6H_3.SO_3H + 2H_2O$	222.18	
34	Xylenol (1, 2) (3)	$(CH_2)_2C_6H_3OH$	122.08	
35	" (1, 2) (4)	$(CH_2)_2C_6H_3OH$	122.08	
36	" (1, 3) (2)	$(CH_2)_2C_6H_3OH$	122.08	
37	" (1, 3) (4)	$(CH_2)_2C_6H_3OH$	122.08	1.0362 <sup>0</sup>
38	" (1, 3) (5)	$(CH_2)_2C_6H_3OH$	122.08	
39	" (1, 4) (2)	$(CH_2)_2C_6H_3OH$	122.08	0.9709 <sup>81</sup>
40	Xylidine 1: 2: 3	$(CH_2)_2C_6H_3.NH_2$	121.13	0.991 <sup>15</sup>
41	" 1: 2: 4	$(CH_2)_2C_6H_3.NH_2$	121.13	1.0755 <sup>17</sup>

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Corrected.	Boiling Point, °C. C. = Corrected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	.....	v. s. sol.	0.3 <sup>20</sup>	199-201°	.....	yel. mon. pris.
2	0.25 <sup>100</sup>	v. soluble	v. v. sol.	135°	with steam	needles/w...
3	insol.	v. soluble	v. soluble	287-8°	sub.	fine need./w.
4	3.7 c.c. <sup>16</sup>	∞	∞	-59°	185.5-6.5	colorless....
5	0.12 <sup>14</sup>	v. soluble	soluble	207°	sub.	needles/w....
6	v. sol. hot	v. soluble	v. soluble	115°	dec.	prisms.....
7	1.0 <sup>14</sup> ; 5 <sup>80</sup>	v. soluble	v. soluble	80-1°	285° in CO <sub>2</sub>	moncl. n./w..
8	3.7 <sup>16</sup>	∞	∞	-58.5°	186.4° C.	.....
9	s. soluble	.....	.....	.....	103.4°	.....
10	insol.	.....	.....	.....	215°	.....
11	.....	.....	.....	.....	55.5-6°	.....
12	.....	.....	.....	.....	50°	.....
13	s. soluble	soluble	soluble	23°	206-7°	cryst.....
14	s. sol. hot	v. soluble	v. soluble	143.5°	.....	red moncl.
15	.....	soluble	.....	.....	56°	{ [tab./w.
16	.....	.....	.....	.....	16° <sup>750</sup>	
17	.....	soluble	.....	.....	-18-15°	.....
18	.....	soluble	∞	.....	39°	.....
19	.....	.....	.....	.....	114-4.5°	.....
20	s. soluble	∞	∞	.....	35.5°	.....
21	s. soluble	∞	∞	.....	101°	oily.....
22	.....	.....	.....	.....	.....	.....
23	v. s. soluble	s. soluble	soluble	100.5°	315° C.	leaflets/al...
24	0.26 <sup>17</sup>	0.033 <sup>17</sup>	v.sol.KOH	.....	sub. pt.dec.	powder.....
25	insol.	0.7	s. soluble	173-4°	350-1°	long nee. /al.
26	insol.	v. soluble	v. soluble	-28°	142° C.	.....
27	insol.	soluble	∞	-29°	142-3°	colorless....
28	insol.	v. soluble	v. soluble	-54-3°	139.2°	.....
29	insol.	soluble	∞	-54°	138.5-9.5	colorless....
30	insol.	v. soluble	v. soluble	15°	138°	moncl. prisms
31	insol.	soluble	∞	15°	137-7.5	moncl. prisms
32	insol.	soluble	∞	.....	.....	.....
33	soluble	.....	.....	dec.	.....	rectang. tab..
34	soluble	soluble	.....	75°	218° C.	long need./w.
35	soluble	soluble	.....	65°	225° <sup>767</sup>	long need./w.
36	s. sol. hot	soluble	.....	49°	211-2°	leaflets.....
37	v. s. sol.	∞	∞	26°	211.5° C.	needles.....
38	s. soluble	soluble	sol. NaOH	68° or 64°	219.5°	fine need./w.
39	soluble	soluble	.....	74.5°	211.5°	large flat ned.
40	.....	.....	.....	< -15°	223° <sup>779</sup>	.....
41	s. soluble	mod.sol.lig	.....	49°	226°	moncl. tab...

Number.	Name.	Formula.	Molecular Weight.	Specific Gravity. Water = 1. Air = 1 (A).
1	Xylidine 1: 3: 2.....	$(\text{CH}_3)_2\text{C}_6\text{H}_3.\text{NH}_2$ .....	121.13	.....
2	" 1: 3: 4.....	$(\text{CH}_3)_2\text{C}_6\text{H}_3.\text{NH}_2$ .....	121.13	0.9184 <sup>15</sup>
3	" 1: 3: 5.....	$(\text{CH}_3)_2\text{C}_6\text{H}_3.\text{NH}_2$ .....	121.13	0.9935 <sup>0</sup>
4	" 1: 4: 2.....	$(\text{CH}_3)_2\text{C}_6\text{H}_3.\text{NH}_2$ .....	121.13	0.980 <sup>15</sup>
5	Xylose (l.).....	$\text{C}_5\text{H}_{10}\text{O}_5$ .....	150.08	1.535 <sup>0</sup>
6	Zinc ethyl.....	$\text{Zn}(\text{C}_2\text{H}_5)_2$ .....	123.48	1.182 <sup>15</sup>
7	methyl.....	$\text{Zn}(\text{CH}_3)_2$ .....	95.45	1.386 <sup>10</sup>

Number.	Solubility in 100 c.c.			Melting Point, °C. C. = Cor- rected.	Boiling Point, °C. C. = Cor- rected.	Crystalline Form and Color.
	Water (w.).	Alcohol (al.).	Ether (et.).			
1	.....	.....	.....	.....	216°	.....
2	.....	.....	.....	.....	212°	.....
3	.....	.....	.....	.....	220-1.°	.....
4	.....	.....	.....	15.5°	215° <sup>0.780</sup>	.....
5 117 <sup>20</sup>	v. v. s. sol.	v. v. s. sol.	v. v. s. sol.	150-3°	.....	orthorhomb.
6 dec.	dec.	soluble	soluble	-28°	118°	.....
7 dec.	.....	.....	.....	-40°	46°	.....

# SPECIFIC GRAVITY TABLES

## XXVII (a). — EQUIVALENT OF DEGREES BAUMÉ (AMERICAN STANDARD) AND SPECIFIC GRAVITY AT 60° F.

$$\text{DEGREES BAUMÉ} = 145 - \frac{145}{\text{Sp. Gr.}} \quad \text{For Liquids Heavier than Water.}$$

Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity
0.0	1.0000	.7	1.0262	.4	1.0538	.1	1.0829
.1	1.0007	.8	1.0269	.5	1.0545	.2	1.0837
.2	1.0014	.9	1.0276	.6	1.0553	.3	1.0845
.3	1.0021	4.0	1.0284	.7	1.0561	.4	1.0853
.4	1.0028	.1	1.0291	.8	1.0569	.5	1.0861
.5	1.0035	.2	1.0298	.9	1.0576	.6	1.0870
.6	1.0042	.3	1.0306	8.0	1.0584	.7	1.0878
.7	1.0049	.4	1.0313	.1	1.0592	.8	1.0886
.8	1.0055	.5	1.0320	.2	1.0599	.9	1.0894
.9	1.0062	.6	1.0328	.3	1.0607	12.0	1.0902
1.0	1.0069	.7	1.0335	.4	1.0615	.1	1.0910
.1	1.0076	.8	1.0342	.5	1.0623	.2	1.0919
.2	1.0083	.9	1.0350	.6	1.0630	.3	1.0927
.3	1.0090	5.0	1.0357	.7	1.0638	.4	1.0935
.4	1.0097	.1	1.0365	.8	1.0646	.5	1.0943
.5	1.0105	.2	1.0372	.9	1.0654	.6	1.0952
.6	1.0112	.3	1.0379	9.0	1.0662	.7	1.0960
.7	1.0119	.4	1.0387	.1	1.0670	.8	1.0968
.8	1.0126	.5	1.0394	.2	1.0677	.9	1.0977
.9	1.0133	.6	1.0402	.3	1.0685	13.0	1.0985
2.0	1.0140	.7	1.0409	.4	1.0693	.1	1.0993
.1	1.0147	.8	1.0417	.5	1.0701	.2	1.1002
.2	1.0154	.9	1.0424	.6	1.0709	.3	1.1010
.3	1.0161	6.0	1.0432	.7	1.0717	.4	1.1018
.4	1.0168	.1	1.0439	.8	1.0725	.5	1.1027
.5	1.0175	.2	1.0447	.9	1.0733	.6	1.1035
.6	1.0183	.3	1.0454	10.0	1.0741	.7	1.1043
.7	1.0190	.4	1.0462	.1	1.0749	.8	1.1052
.8	1.0197	.5	1.0469	.2	1.0757	.9	1.1060
.9	1.0204	.6	1.0477	.3	1.0765	14.0	1.1069
3.0	1.0211	.7	1.0484	.4	1.0773	.1	1.1077
.1	1.0218	.8	1.0492	.5	1.0781	.2	1.1086
.2	1.0226	.9	1.0500	.6	1.0789	.3	1.1094
.3	1.0233	7.0	1.0507	.7	1.0797	.4	1.1103
.4	1.0240	.1	1.0515	.8	1.0805	.5	1.1111
.5	1.0247	.2	1.0522	.9	1.0813	.6	1.1120
.6	1.0255	.3	1.0530	11.0	1.0821	.7	1.1128



Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity
.8	1.1137	.2	1.1526	.6	1.1944	28.0	1.2393
.9	1.1145	.3	1.1535	.7	1.1954	.1	1.2404
15.0	1.1154	.4	1.1545	.8	1.1964	.2	1.2414
.1	1.1162	.5	1.1554	.9	1.1974	.3	1.2425
.2	1.1171	.6	1.1563	24.0	1.1983	.4	1.2436
.3	1.1180	.7	1.1572	.1	1.1993	.5	1.2446
.4	1.1188	.8	1.1581	.2	1.2003	.6	1.2457
.5	1.1197	.9	1.1591	.3	1.2013	.7	1.2468
.6	1.1206	20.0	1.1600	.4	1.2023	.8	1.2478
.7	1.1214	.1	1.1609	.5	1.2033	.9	1.2489
.8	1.1223	.2	1.1619	.6	1.2043	29.0	1.2500
.9	1.1232	.3	1.1628	.7	1.2053	.1	1.2511
16.0	1.1240	.4	1.1637	.8	1.2063	.2	1.2522
.1	1.1249	.5	1.1647	.9	1.2073	.3	1.2532
.2	1.1258	.6	1.1656	25.0	1.2083	.4	1.2543
.3	1.1267	.7	1.1665	.1	1.2093	.5	1.2554
.4	1.1275	.8	1.1675	.2	1.2104	.6	1.2565
.5	1.1284	.9	1.1684	.3	1.2114	.7	1.2576
.6	1.1293	21.0	1.1694	.4	1.2124	.8	1.2587
.7	1.1302	.1	1.1703	.5	1.2134	.9	1.2598
.8	1.1310	.2	1.1712	.6	1.2144	30.0	1.2609
.9	1.1319	.3	1.1722	.7	1.2154	.1	1.2620
17.0	1.1328	.4	1.1731	.8	1.2164	.2	1.2631
.1	1.1337	.5	1.1741	.9	1.2175	.3	1.2642
.2	1.1346	.6	1.1750	26.0	1.2185	.4	1.2653
.3	1.1355	.7	1.1760	.1	1.2195	.5	1.2664
.4	1.1364	.8	1.1769	.2	1.2205	.6	1.2675
.5	1.1373	.9	1.1779	.3	1.2216	.7	1.2686
.6	1.1381	22.0	1.1789	.4	1.2226	.8	1.2697
.7	1.1390	.1	1.1798	.5	1.2236	.9	1.2708
.8	1.1399	.2	1.1808	.6	1.2247	31.0	1.2719
.9	1.1408	.3	1.1817	.7	1.2257	.1	1.2730
18.0	1.1417	.4	1.1827	.8	1.2267	.2	1.2742
.1	1.1426	.5	1.1837	.9	1.2278	.3	1.2753
.2	1.1435	.6	1.1846	27.0	1.2288	.4	1.2764
.3	1.1444	.7	1.1856	.1	1.2299	.5	1.2775
.4	1.1453	.8	1.1866	.2	1.2309	.6	1.2787
.5	1.1462	.9	1.1876	.3	1.2319	.7	1.2798
.6	1.1472	23.0	1.1885	.4	1.2330	.8	1.2809
.7	1.1481	.1	1.1895	.5	1.2340	.9	1.2821
.8	1.1490	.2	1.1905	.6	1.2351	32.0	1.2832
.9	1.1499	.3	1.1915	.7	1.2361	.1	1.2843
19.0	1.1508	.4	1.1924	.8	1.2372	.2	1.2855
.1	1.1517	.5	1.1934	.9	1.2383	.3	1.2866

Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity
.4	1.2877	.8	1.3401	.2	1.3969	.6	1.4588
.5	1.2889	.9	1.3414	.3	1.3983	.7	1.4602
.6	1.2900	37.0	1.3426	.4	1.3996	.8	1.4617
.7	1.2912	.1	1.3438	.5	1.4010	.9	1.4632
.8	1.2923	.2	1.3451	.6	1.4023	46.0	1.4646
.9	1.2935	.3	1.3463	.7	1.4037	.1	1.4661
33.0	1.2946	.4	1.3476	.8	1.4050	.2	1.4676
.1	1.2958	.5	1.3488	.9	1.4064	.3	1.4691
.2	1.2970	.6	1.3501	42.0	1.4078	.4	1.4706
.3	1.2981	.7	1.3514	.1	1.4091	.5	1.4721
.4	1.2993	.8	1.3526	.2	1.4105	.6	1.4736
.5	1.3004	.9	1.3539	.3	1.4119	.7	1.4751
.6	1.3016	38.0	1.3551	.4	1.4133	.8	1.4766
.7	1.3028	.1	1.3564	.5	1.4146	.9	1.4781
.8	1.3040	.2	1.3577	.6	1.4160	47.0	1.4796
.9	1.3051	.3	1.3590	.7	1.4174	.1	1.4811
34.0	1.3063	.4	1.3602	.8	1.4188	.2	1.4826
.1	1.3075	.5	1.3615	.9	1.4202	.3	1.4841
.2	1.3087	.6	1.3628	43.0	1.4216	.4	1.4857
.3	1.3098	.7	1.3641	.1	1.4230	.5	1.4872
.4	1.3110	.8	1.3653	.2	1.4244	.6	1.4887
.5	1.3122	.9	1.3666	.3	1.4258	.7	1.4902
.6	1.3134	39.0	1.3679	.4	1.4272	.8	1.4918
.7	1.3146	.1	1.3692	.5	1.4286	.9	1.4933
.8	1.3158	.2	1.3705	.6	1.4300	48.0	1.4948
.9	1.3170	.3	1.3718	.7	1.4314	.1	1.4964
35.0	1.3182	.4	1.3731	.8	1.4328	.2	1.4979
.1	1.3194	.5	1.3744	.9	1.4342	.3	1.4995
.2	1.3206	.6	1.3757	44.0	1.4356	.4	1.5010
.3	1.3218	.7	1.3770	.1	1.4371	.5	1.5026
.4	1.3230	.8	1.3783	.2	1.4385	.6	1.5041
.5	1.3242	.9	1.3796	.3	1.4399	.7	1.5057
.6	1.3254	40.0	1.3810	.4	1.4414	.8	1.5073
.7	1.3266	.1	1.3823	.5	1.4428	.9	1.5088
.8	1.3278	.2	1.3836	.6	1.4442	49.0	1.5104
.9	1.3291	.3	1.3849	.7	1.4457	.1	1.5120
36.0	1.3303	.4	1.3862	.8	1.4471	.2	1.5136
.1	1.3315	.5	1.3876	.9	1.4486	.3	1.5152
.2	1.3327	.6	1.3889	45.0	1.4500	.4	1.5167
.3	1.3329	.7	1.3902	.1	1.4515	.5	1.5183
.4	1.3352	.8	1.3916	.2	1.4529	.6	1.5199
.5	1.3364	.9	1.3929	.3	1.4544	.7	1.5215
.6	1.3376	41.0	1.3942	.4	1.4558	.8	1.5231
.7	1.3389	.1	1.3956	.5	1.4573	.9	1.5247

Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity
50.0	1.5263	.4	1.6004	.8	1.6821	.2	1.7726
.1	1.5279	.5	1.6022	.9	1.6841	.3	1.7748
.2	1.5295	.6	1.6040	59.0	1.6860	.4	1.7770
.3	1.5312	.7	1.6058	.1	1.6880	.5	1.7791
.4	1.5328	.8	1.6075	.2	1.6900	.6	1.7813
.5	1.5344	.9	1.6093	.3	1.6919	.7	1.7835
.6	1.5360	55.0	1.6111	.4	1.6939	.8	1.7857
.7	1.5376	.1	1.6129	.5	1.6959	.9	1.7879
.8	1.5393	.2	1.6147	.6	1.6979	64.0	1.7901
.9	1.5409	.3	1.6165	.7	1.6999	.1	1.7923
51.0	1.5426	.4	1.6183	.8	1.7019	.2	1.7946
.1	1.5442	.5	1.6201	.9	1.7039	.3	1.7968
.2	1.5458	.6	1.6219	60.0	1.7059	.4	1.7990
.3	1.5475	.7	1.6237	.1	1.7079	.5	1.8012
.4	1.5491	.8	1.6256	.2	1.7099	.6	1.8035
.5	1.5508	.9	1.6274	.3	1.7119	.7	1.8057
.6	1.5525	56.0	1.6292	.4	1.7139	.8	1.8080
.7	1.5541	.1	1.6310	.5	1.7160	.9	1.8102
.8	1.5558	.2	1.6329	.6	1.7180	65.0	1.8125
.9	1.5575	.3	1.6347	.7	1.7200	.1	1.8148
52.0	1.5591	.4	1.6366	.8	1.7221	.2	1.8170
.1	1.5608	.5	1.6384	.9	1.7241	.3	1.8193
.2	1.5625	.6	1.6403	61.0	1.7262	.4	1.8216
.3	1.5642	.7	1.6421	.1	1.7282	.5	1.8239
.4	1.5659	.8	1.6440	.2	1.7303	.6	1.8262
.5	1.5676	.9	1.6459	.3	1.7324	.7	1.8285
.6	1.5693	57.0	1.6477	.4	1.7344	.8	1.8308
.7	1.5710	.1	1.6496	.5	1.7365	.9	1.8331
.8	1.5727	.2	1.6515	.6	1.7386	66.0	1.8354
.9	1.5744	.3	1.6534	.7	1.7407	.1	1.8378
53.0	1.5761	.4	1.6553	.8	1.7428	.2	1.8401
.1	1.5778	.5	1.6571	.9	1.7449	.3	1.8424
.2	1.5795	.6	1.6590	62.0	1.7470	.4	1.8448
.3	1.5812	.7	1.6609	.1	1.7491	.5	1.8471
.4	1.5830	.8	1.6628	.2	1.7512	.6	1.8495
.5	1.5847	.9	1.6648	.3	1.7533	.7	1.8519
.6	1.5864	58.0	1.6667	.4	1.7554	.8	1.8542
.7	1.5882	.1	1.6686	.5	1.7576	.9	1.8566
.8	1.5899	.2	1.6705	.6	1.7597	67.0	1.8590
.9	1.5917	.3	1.6724	.7	1.7618	.1	1.8614
54.0	1.5934	.4	1.6744	.8	1.7640	.2	1.8638
.1	1.5952	.5	1.6763	.9	1.7661	.3	1.8662
.2	1.5969	.6	1.6782	63.0	1.7683	.4	1.8686
.3	1.5987	.7	1.6802	.1	1.7705		

Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity
.5	1.8710	.2	1.8880	.9	1.9054	.6	1.9231
.6	1.8734	.3	1.8905	69.0	1.9079	.7	1.9256
.7	1.8758	.4	1.8930	.1	1.9104	.8	1.9282
.8	1.8782	.5	1.8954	.2	1.9129	.9	1.9308
.9	1.8807	.6	1.8979	.3	1.9155	70.0	1.9333
68.0	1.8831	.7	1.9004	.4	1.9180		
.1	1.8856	.8	1.9029	.5	1.9205		

XXVII (b). — EQUIVALENT BAUMÉ DEGREES  
(AMERICAN STANDARD) WITH SPECIFIC  
GRAVITY AT 60° F.

$$\text{Sp. Gr.} = \frac{140}{130 + B^{\circ}} \text{ For Liquids Lighter than Water.}$$

Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity
10.0	1.0000	.2	0.9845	.4	0.9695	.6	0.9550
.1	0.9993	.3	0.9838	.5	0.9689	.7	0.9543
.2	0.9986	.4	0.9831	.6	0.9682	.8	0.9537
.3	0.9979	.5	0.9825	.7	0.9675	.9	0.9530
.4	0.9972	.6	0.9818	.8	0.9669	17.0	0.9524
.5	0.9964	.7	0.9811	.9	0.9662	.1	0.9517
.6	0.9957	.8	0.9804	15.0	0.9655	.2	0.9511
.7	0.9950	.9	0.9797	.1	0.9649	.3	0.9504
.8	0.9943	13.0	0.9790	.2	0.9642	.4	0.9498
.9	0.9936	.1	0.9783	.3	0.9635	.5	0.9492
11.0	0.9929	.2	0.9777	.4	0.9629	.6	0.9485
.1	0.9922	.3	0.9770	.5	0.9622	.7	0.9479
.2	0.9915	.4	0.9763	.6	0.9615	.8	0.9472
.3	0.9908	.5	0.9756	.7	0.9609	.9	0.9466
.4	0.9901	.6	0.9749	.8	0.9602	18.0	0.9459
.5	0.9894	.7	0.9743	.9	0.9596	.1	0.9453
.6	0.9887	.8	0.9736	16.0	0.9589	.2	0.9447
.7	0.9880	.9	0.9729	.1	0.9582	.3	0.9440
.8	0.9873	14.0	0.9722	.2	0.9576	.4	0.9434
.9	0.9866	.1	0.9715	.3	0.9569	.5	0.9428
12.0	0.9859	.2	0.9709	.4	0.9563	.6	0.9421
.1	0.9852	.3	0.9702	.5	0.9556	.7	0.9415

Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity
.8	0.9409	.2	0.9138	.6	0.8883	32.0	0.8642
.9	0.9402	.3	0.9132	.7	0.8878	.1	0.8637
19.0	0.9396	.4	0.9126	.8	0.8872	.2	0.8631
.1	0.9390	.5	0.9121	.9	0.8866	.3	0.8626
.2	0.9383	.6	0.9115	28.0	0.8861	.4	0.8621
.3	0.9377	.7	0.9109	.1	0.8855	.5	0.8615
.4	0.9371	.8	0.9103	.2	0.8850	.6	0.8610
.5	0.9365	.9	0.9097	.3	0.8844	.7	0.8605
.6	0.9358	24.0	0.9091	.4	0.8838	.8	0.8600
.7	0.9352	.1	0.9085	.5	0.8833	.9	0.8594
.8	0.9346	.2	0.9079	.6	0.8827	33.0	0.8589
.9	0.9340	.3	0.9073	.7	0.8822	.1	0.8584
20.0	0.9333	.4	0.9067	.8	0.8816	.2	0.8578
.1	0.9327	.5	0.9061	.9	0.8811	.3	0.8573
.2	0.9321	.6	0.9056	29.0	0.8805	.4	0.8568
.3	0.9315	.7	0.9050	.1	0.8799	.5	0.8563
.4	0.9309	.8	0.9044	.2	0.8794	.6	0.8557
.5	0.9302	.9	0.9038	.3	0.8788	.7	0.8552
.6	0.9296	25.0	0.9032	.4	0.8783	.8	0.8547
.7	0.9290	.1	0.9026	.5	0.8777	.9	0.8542
.8	0.9284	.2	0.9021	.6	0.8772	34.0	0.8537
.9	0.9278	.3	0.9015	.7	0.8766	.1	0.8531
21.0	0.9272	.4	0.9009	.8	0.8761	.2	0.8526
.1	0.9265	.5	0.9003	.9	0.8755	.3	0.8521
.2	0.9259	.6	0.8997	30.0	0.8750	.4	0.8516
.3	0.9253	.7	0.8992	.1	0.8745	.5	0.8511
.4	0.9247	.8	0.8986	.2	0.8739	.6	0.8505
.5	0.9241	.9	0.8980	.3	0.8734	.7	0.8500
.6	0.9235	26.0	0.8974	.4	0.8728	.8	0.8495
.7	0.9229	.1	0.8969	.5	0.8723	.9	0.8490
.8	0.9223	.2	0.8963	.6	0.8717	35.0	0.8485
.9	0.9217	.3	0.8957	.7	0.8712	.1	0.8480
22.0	0.9211	.4	0.8951	.8	0.8706	.2	0.8475
.1	0.9204	.5	0.8946	.9	0.8701	.3	0.8469
.2	0.9198	.6	0.8940	31.0	0.8696	.4	0.8464
.3	0.9192	.7	0.8934	.1	0.8690	.5	0.8459
.4	0.9186	.8	0.8929	.2	0.8685	.6	0.8454
.5	0.9180	.9	0.8923	.3	0.8679	.7	0.8449
.6	0.9174	27.0	0.8917	.4	0.8674	.8	0.8444
.7	0.9168	.1	0.8912	.5	0.8669	.9	0.8439
.8	0.9162	.2	0.8906	.6	0.8663	36.0	0.8434
.9	0.9156	.3	0.8900	.7	0.8658	.1	0.8429
23.0	0.9150	.4	0.8895	.8	0.8653	.2	0.8424
.1	0.9144	.5	0.8889	.9	0.8647	.3	0.8419

Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity
.4	0.8413	.8	0.8197	.2	0.7991	.6	0.7795
.5	0.8408	.9	0.8192	.3	0.7986	.7	0.7791
.6	0.8403	41.0	0.8187	.4	0.7982	.8	0.7786
.7	0.8398	.1	0.8182	.5	0.7977	.9	0.7782
.8	0.8393	.2	0.8178	.6	0.7973	50.0	0.7778
.9	0.8388	.3	0.8173	.7	0.7968	.1	0.7773
37.0	0.8383	.4	0.8168	.8	0.7964	.2	0.7769
.1	0.8378	.5	0.8163	.9	0.7959	.3	0.7765
.2	0.8373	.6	0.8159	46.0	0.7955	.4	0.7761
.3	0.8368	.7	0.8154	.1	0.7950	.5	0.7756
.4	0.8363	.8	0.8149	.2	0.7946	.6	0.7752
.5	0.8358	.9	0.8144	.3	0.7941	.7	0.7748
.6	0.8353	42.0	0.8140	.4	0.7937	.8	0.7743
.7	0.8348	.1	0.8135	.5	0.7932	.9	0.7739
.8	0.8343	.2	0.8130	.6	0.7928	51.0	0.7735
.9	0.8338	.3	0.8125	.7	0.7923	.1	0.7731
38.0	0.8333	.4	0.8121	.8	0.7919	.2	0.7726
.1	0.8328	.5	0.8116	.9	0.7914	.3	0.7722
.2	0.8323	.6	0.8111	47.0	0.7910	.4	0.7718
.3	0.8318	.7	0.8107	.1	0.7905	.5	0.7713
.4	0.8314	.8	0.8102	.2	0.7901	.6	0.7709
.5	0.8309	.9	0.8097	.3	0.7896	.7	0.7705
.6	0.8304	43.0	0.8092	.4	0.7892	.8	0.7701
.7	0.8299	.1	0.8088	.5	0.7887	.9	0.7697
.8	0.8294	.2	0.8083	.6	0.7883	52.0	0.7692
.9	0.8289	.3	0.8078	.7	0.7878	.1	0.7688
39.0	0.8284	.4	0.8074	.8	0.7874	.2	0.7684
.1	0.8279	.5	0.8069	.9	0.7870	.3	0.7680
.2	0.8274	.6	0.8065	48.0	0.7865	.4	0.7675
.3	0.8269	.7	0.8060	.1	0.7861	.5	0.7671
.4	0.8264	.8	0.8055	.2	0.7856	.6	0.7667
.5	0.8260	.9	0.8051	.3	0.7852	.7	0.7663
.6	0.8255	44.0	0.8046	.4	0.7848	.8	0.7659
.7	0.8250	.1	0.8041	.5	0.7843	.9	0.7654
.8	0.8245	.2	0.8037	.6	0.7839	53.0	0.7650
.9	0.8240	.3	0.8032	.7	0.7834	.1	0.7646
40.0	0.8235	.4	0.8028	.8	0.7830	.2	0.7642
.1	0.8230	.5	0.8023	.9	0.7826	.3	0.7638
.2	0.8226	.6	0.8018	49.0	0.7821	.4	0.7634
.3	0.8221	.7	0.8014	.1	0.7817	.5	0.7629
.4	0.8216	.8	0.8009	.2	0.7812	.6	0.7625
.5	0.8211	.9	0.8005	.3	0.7808	.7	0.7621
.6	0.8206	45.0	0.8000	.4	0.7804	.8	0.7617
.7	0.8202	.1	0.7995	.5	0.7799	.9	0.7613

Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity
54.0	0.7609	.4	0.7431	.8	0.7261	.2	0.7099
.1	0.7605	.5	0.7427	.9	0.7258	.3	0.7096
.2	0.7600	.6	0.7423	63.0	0.7254	.4	0.7092
.3	0.7596	.7	0.7419	.1	0.7250	.5	0.7089
.4	0.7592	.8	0.7415	.2	0.7246	.6	0.7085
.5	0.7588	.9	0.7411	.3	0.7243	.7	0.7081
.6	0.7584	59.0	0.7407	.4	0.7239	.8	0.7078
.7	0.7580	.1	0.7403	.5	0.7235	.9	0.7074
.8	0.7576	.2	0.7400	.6	0.7231	68.0	0.7071
.9	0.7572	.3	0.7396	.7	0.7228	.1	0.7067
55.0	0.7568	.4	0.7392	.8	0.7224	.2	0.7064
.1	0.7563	.5	0.7388	.9	0.7220	.3	0.7060
.2	0.7559	.8	0.7384	64.0	0.7216	.4	0.7056
.3	0.7555	.7	0.7380	.1	0.7213	.5	0.7053
.4	0.7551	.8	0.7376	.2	0.7209	.6	0.7049
.5	0.7547	.9	0.7372	.3	0.7205	.7	0.7046
.6	0.7543	60.0	0.7368	.4	0.7202	.8	0.7042
.7	0.7539	.1	0.7365	.5	0.7198	.9	0.7039
.8	0.7535	.2	0.7361	.6	0.7194	69.0	0.7035
.9	0.7531	.3	0.7357	.7	0.7191	.1	0.7032
56.0	0.7527	.4	0.7353	.8	0.7187	.2	0.7028
.1	0.7523	.5	0.7349	.9	0.7183	.3	0.7025
.2	0.7519	.6	0.7345	65.0	0.7179	.4	0.7021
.3	0.7515	.7	0.7341	.1	0.7176	.5	0.7018
.4	0.7511	.8	0.7338	.2	0.7172	.6	0.7014
.5	0.7507	.9	0.7334	.3	0.7168	.7	0.7011
.6	0.7503	61.0	0.7330	.4	0.7165	.8	0.7007
.7	0.75	.1	0.7326	.5	0.7161	.9	0.7004
.8	0.7495	.2	0.7322	.6	0.7157	70.0	0.7000
.9	0.7491	.3	0.7318	.7	0.7154	.1	0.6997
57.0	0.7487	.4	0.7315	.8	0.7150	.2	0.6993
.1	0.7483	.5	0.7311	.9	0.7147	.3	0.6990
.2	0.7479	.6	0.7307	66.0	0.7143	.4	0.6986
.3	0.7475	.7	0.7303	.1	0.7139	.5	0.6983
.4	0.7471	.8	0.7299	.2	0.7136	.6	0.6979
.5	0.7467	.9	0.7295	.3	0.7132	.7	0.6976
.6	0.7463	62.0	0.7292	.4	0.7128	.8	0.6972
.7	0.7459	.1	0.7288	.5	0.7125	.9	0.6969
.8	0.7455	.2	0.7284	.6	0.7121	71.0	0.6965
.9	0.7451	.3	0.7280	.7	0.7117	.1	0.6962
58.0	0.7447	.4	0.7277	.8	0.7114	.2	0.6958
.1	0.7443	.5	0.7273	.9	0.7110	.3	0.6955
.2	0.7439	.6	0.7269	67.0	0.7107	.4	0.6951
.3	0.7435	.7	0.7265	.1	0.7103	.5	0.6948

Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity	Degrees Baumé	Specific Gravity
.6	0.6944	.8	0.6869	.9	0.6799	78.0	0.6731
.7	0.6941	.9	0.6866	76.0	0.6796	.1	0.6728
.8	0.6938	74.0	0.6863	.1	0.6793	.2	0.6724
.9	0.6934	.1	0.6859	.2	0.6790	.3	0.6721
72.0	0.6931	.2	0.6856	.3	0.6786	.4	0.6718
.1	0.6927	.3	0.6853	.4	0.6783	.5	0.6715
.2	0.6924	.4	0.6849	.5	0.6780	.6	0.6711
.3	0.6920	.5	0.6846	.6	0.6776	.7	0.6708
.4	0.6917	.6	0.6843	.7	0.6773	.8	0.6705
.5	0.6914	.7	0.6839	.8	0.6770	.9	0.6702
.6	0.6910	.8	0.6836	.9	0.6767	79.0	0.6699
.7	0.6907	.9	0.6833	77.0	0.6763	.1	0.6695
.8	0.6903	75.0	0.6829	.1	0.6760	.2	0.6692
.9	0.6900	.1	0.6826	.2	0.6757	.3	0.6689
73.0	0.6897	.2	0.6823	.3	0.6753	.4	0.6686
.1	0.6893	.3	0.6819	.4	0.6750	.5	0.6683
.2	0.6890	.4	0.6816	.5	0.6747	.6	0.6679
.3	0.6886	.5	0.6813	.6	0.6744	.7	0.6676
.4	0.6883	.6	0.6809	.7	0.6740	.8	0.6673
.5	0.6880	.7	0.6806	.8	0.6737	.9	0.6670
.6	0.6876	.8	0.6803	.9	0.6734	80.0	0.6667
.7	0.6873						



**XXVIII**

**SULPHURIC ACID**

**BY FERGUSON AND TALBOT**

**STANDARD TABLE OF THE MANUFACTURING CHEMISTS' ASSOCIATION  
OF THE UNITED STATES**

## XXVIII.—SUL

By W. C. FERGUSON

Degrees Baumé.	Specific Gravity 60° F.	Degrees Twaddell.	Per Cent H <sub>2</sub> SO <sub>4</sub> .	Weight of 1 Cu. Ft. in Lbs. Av.	Per Cent O. V.	Pounds O. V. in 1 Cubic Foot.
0	1.0000	0.0	0.00	62.37	0.00	0.00
1	1.0069	1.4	1.02	62.80	1.09	0.68
2	1.0140	2.8	2.08	63.24	2.23	1.41
3	1.0211	4.2	3.13	63.69	3.36	2.14
4	1.0284	5.7	4.21	64.14	4.52	2.90
5	1.0357	7.1	5.28	64.60	5.67	3.66
6	1.0432	8.6	6.37	65.06	6.84	4.45
7	1.0507	10.1	7.45	65.53	7.99	5.24
8	1.0584	11.7	8.55	66.01	9.17	6.06
9	1.0662	13.2	9.66	66.50	10.37	6.89
10	1.0741	14.8	10.77	66.99	11.56	7.74
11	1.0821	16.4	11.89	67.49	12.76	8.61
12	1.0902	18.0	13.01	68.00	13.96	9.49
13	1.0985	19.7	14.13	68.51	15.16	10.39
14	1.1069	21.4	15.25	69.04	16.36	11.30
15	1.1154	23.1	16.38	69.57	17.58	12.23
16	1.1240	24.8	17.53	70.10	18.81	13.19
17	1.1328	26.6	18.71	70.65	20.08	14.18
18	1.1417	28.3	19.89	71.21	21.34	15.20
19	1.1508	30.2	21.07	71.78	22.61	16.23
20	1.1600	32.0	22.25	72.35	23.87	17.27
21	1.1694	33.9	23.43	72.94	25.14	18.34
22	1.1789	35.8	24.61	73.53	26.41	19.42
23	1.1885	37.7	25.81	74.13	27.69	20.53
24	1.1983	39.7	27.03	74.74	29.00	21.68

Sp. Gr. determinations were made at 60° F., compared with water at 60° F.

From the Sp. Grs., the corresponding degrees Baumé were calculated by the following formula: Baumé = 145 - 145/Sp. Gr.

Baumé Hydrometers for use with this table must be graduated by the above formula, which formula should always be printed on the scale.

66° Baumé = Sp. Gr. 1.8354.

1 cu. ft. water at 60° F. weighs 62.37 lbs. av.

Atomic weights from F. W. Clarke's table of 1901. O = 16.

H<sub>2</sub>SO<sub>4</sub> = 100 per cent.

% H <sub>2</sub> SO <sub>4</sub>	% O. V.	% 60°
O. V. = 93.19	= 100.00	= 119.98
60° = 77.67	= 83.35	= 100.00
50° = 62.18	= 66.72	= 80.06

# PHURIC ACID

AND H. P. TALBOT

Degrees Baumé.	* Freezing (Melting) Point. F.	APPROXIMATE BOILING POINTS			
		50° B, 295° F. 60° " 386° " 61° " 400° " 62° " 415° " 63° " 432° " 64° " 451° " 65° " 485° " 66° " 538° "			
0	32.0				
1	31.2				
2	30.5				
3	29.8				
4	28.9				
5	28.1				
6	27.2				
7	26.3				
8	25.1	FIXED POINTS			
9	24.0				
10	22.8	Specific Gravity.	Per Cent H <sub>2</sub> SO <sub>4</sub> .	Specific Gravity.	Per Cent H <sub>2</sub> SO <sub>4</sub> .
11	21.5	1.0000	.00	1.5281	62.34
12	20.0	1.0048	.71	1.5440	63.79
13	18.3	1.0347	5.14	1.5748	66.51
14	16.6	1.0649	9.48	1.6272	71.00
15	14.7	1.0992	14.22	1.6679	74.46
16	12.6	1.1353	19.04	1.7044	77.54
17	10.2	1.1736	23.94	1.7258	79.40
18	7.7	1.2105	28.55	1.7472	81.32
19	4.8	1.2513	33.49	1.7700	83.47
		1.2951	38.64	1.7959	86.36
20	+ 1.6	1.3441	44.15	1.8117	88.53
21	- 1.8	1.3947	49.52	1.8194	89.75
22	- 6.0	1.4307	53.17	1.8275	91.32
23	-11	1.4667	56.68	1.8354	93.19
24	-16	1.4822	58.14		

Acids stronger than 66° Bé. should have their percentage compositions determined by chemical analysis.

\* Calculated from Pickering's results, Jour. of Lon. Ch. Soc., vol. 57, p. 363.

AUTHORITIES — W. C. FERGUSON; H. P. TALBOT.

This table has been approved and adopted as a standard by the Manufacturing Chemists' Association of the United States.

W. H. BOWER,  
HENRY HOWARD,  
JAS. L. MORGAN,  
ARTHUR WYMAN,  
A. G. ROSENGARTEN,  
*Executive Committee.*

New York, June 23, 1904.

Degrees Baumé.	Specific Gravity 60° F.	Degrees Twaddell.	Per Cent H <sub>2</sub> SO <sub>4</sub> .	Weight of 1 Cu. Ft. in Lbs. Av.	Per Cent O. V.	Pounds O. V. in 1 Cubic Foot.
25	1.2083	41.7	28.28	75.36	30.34	22.87
26	1.2185	43.7	29.53	76.00	31.69	24.08
27	1.2288	45.8	30.79	76.64	33.04	25.32
28	1.2393	47.9	32.05	77.30	34.39	26.58
29	1.2500	50.0	33.33	77.96	35.76	27.88
30	1.2609	52.2	34.63	78.64	37.16	29.22
31	1.2719	54.4	35.93	79.33	38.55	30.58
32	1.2832	56.6	37.26	80.03	39.98	32.00
33	1.2946	58.9	38.58	80.74	41.40	33.42
34	1.3063	61.3	39.92	81.47	42.83	34.90
35	1.3182	63.6	41.27	82.22	44.28	36.41
36	1.3303	66.1	42.63	82.97	45.74	37.95
37	1.3426	68.5	43.99	83.74	47.20	39.53
38	1.3551	71.0	45.35	84.52	48.66	41.13
39	1.3679	73.6	46.72	85.32	50.13	42.77
40	1.3810	76.2	48.10	86.13	51.61	44.45
41	1.3942	78.8	49.47	86.96	53.08	46.16
42	1.4078	81.6	50.87	87.80	54.58	47.92
43	1.4216	84.3	52.26	88.67	56.07	49.72
44	1.4356	87.1	53.66	89.54	57.58	51.56
45	1.4500	90.0	55.07	90.44	59.09	53.44
46	1.4646	92.9	56.48	91.35	60.60	55.36
47	1.4796	95.9	57.90	92.28	62.13	57.33
48	1.4948	99.0	59.32	93.23	63.65	59.34
49	1.5104	102.1	60.75	94.20	65.18	61.40
50	1.5263	105.3	62.18	95.20	66.72	63.52
51	1.5426	108.5	63.66	96.21	68.31	65.72
52	1.5591	111.8	65.13	97.24	69.89	67.96
53	1.5761	115.2	66.63	98.30	71.50	70.28
54	1.5934	118.7	68.13	99.38	73.11	72.66
55	1.6111	122.2	69.65	100.48	74.74	75.10
56	1.6292	125.8	71.17	101.61	76.37	77.60
57	1.6477	129.5	72.75	102.77	78.07	80.23
58	1.6667	133.3	74.36	103.95	79.79	82.95
59	1.6860	137.2	75.99	105.16	81.54	85.75

Degrees Baumé.	* Freezing (Melting) Point. °F.	ALLOWANCE FOR TEMPERATURE			
25	-23				
26	-30				
27	-39	At 10° Bé.	.029° Bé. or	.00023 Sp. Gr.	= 1° F.
28	-49	" 20° "	.036° "	.00034 "	= 1° "
29	-61	" 30° "	.035° "	.00039 "	= 1° "
		" 40° "	.031° "	.00041 "	= 1° "
		" 50° "	.028° "	.00045 "	= 1° "
30	-74	" 60° "	.026° "	.00053 "	= 1° "
31	-82	" 63° "	.026° "	.00057 "	= 1° "
32	-96	" 66° "	.0235° "	.00054 "	= 1° "
33	-97				
34	-91				
35	-81				
36	-70				
37	-60				
38	-53				
39	-47				
		Per Cent 60° Baumé.	Pounds 60° Baumé in 1 Cubic Foot.	Per Cent 50° Baumé.	Pounds 50° Baumé in 1 Cubic Foot.
40	-41	61.93	53.34	77.36	66.63
41	-35	63.69	55.39	79.56	69.19
42	-31	65.50	57.50	81.81	71.83
43	-27	67.28	59.66	84.05	74.53
44	-23	69.09	61.86	86.30	77.27
45	-20	70.90	64.12	88.56	80.10
46	-14	72.72	66.43	90.83	82.98
47	-15	74.55	68.79	93.12	85.93
48	-18	76.37	71.20	95.40	88.94
49	-22	78.22	73.68	97.70	92.03
50	-27	80.06	76.21	100.00	95.20
51	-33	81.96	78.85	102.38	98.50
52	-39	83.86	81.54	104.74	101.85
53	-49	85.79	84.33	107.15	105.33
54	-59	87.72	87.17	109.57	108.89
55	..	89.67	90.10	112.01	112.55
56	..	91.63	93.11	114.46	116.30
57	..	93.67	96.26	117.00	120.24
58	..	95.74	99.52	119.59	124.31
59	- 7	97.84	102.89	122.21	128.52

Degrees Baumé.	Specific Gravity 60° F. 60° F.	Degrees Twaddell.	Per Cent H <sub>2</sub> SO <sub>4</sub> .	Weight of 1 Cu. Ft. in Lbs. Av.	Per Cent O. V.	Pounds O. V. in 1 Cubic Foot.
60	1.7059	141.2	77.67	106.40	83.35	88.68
61	1.7262	145.2	79.43	107.66	85.23	91.76
62	1.7470	149.4	81.30	108.96	87.24	95.06
63	1.7683	153.7	83.34	110.29	89.43	98.63
64	1.7901	158.0	85.66	111.65	91.92	102.63
64½	1.7957	159.1	86.33	112.00	92.64	103.75
64½	1.8012	160.2	87.04	112.34	93.40	104.93
64½	1.8068	161.4	87.81	112.69	94.23	106.19
65	1.8125	162.5	88.65	113.05	95.13	107.54
65½	1.8182	163.6	89.55	113.40	96.10	108.97
65½	1.8239	164.8	90.60	113.76	97.22	110.60
65½	1.8297	165.9	91.80	114.12	98.51	112.42
66	1.8354	167.1	93.19	114.47	100.00	114.47

## XXIX.—FUMING SULPHURIC ACID AT 20°

CL. WINKLER

Specific Gravity.	Total SO <sub>3</sub> .	100 Parts Contain			Specific Gravity.	Total SO <sub>3</sub> .	100 Parts Contain		
		Free SO <sub>3</sub> .*	H <sub>2</sub> SO <sub>4</sub>	Acid of 66° B.			Free SO <sub>3</sub> .*	H <sub>2</sub> SO <sub>4</sub>	Acid of 66° B.
1.835	75.31		92.25	99	1.905	83.57	10.56	89.44	65.68
1.840	77.38		94.79	90.69	1.910	83.73	11.43	88.57	65.25
1.845	79.28		97.11	83.08	1.915	84.08	13.33	86.67	63.84
1.850	80.01		98.01	80.10	1.920	84.56	15.95	84.05	62.10
1.855	80.95		99.16	76.38	1.925	85.06	18.67	81.33	59.90
1.860	81.84	1.54	98.46	72.81	1.930	85.57	21.34	78.66	57.86
1.865	82.12	2.66	97.34	71.71	1.935	86.23	25.65	74.35	55.21
1.870	82.41	4.28	95.76	70.53	1.940	86.78	28.03	71.97	53.00
1.875	82.63	5.44	94.56	69.35	1.945	87.13	29.94	70.06	51.60
1.880	82.81	6.42	93.58	68.92	1.950	87.41	31.46	63.54	50.48
1.885	82.97	7.29	92.71	68.27	1.955	87.65	32.77	67.23	49.52
1.890	83.13	8.16	91.94	67.55	1.960	88.22	35.87	64.13	47.23
1.895	83.43	9.34	90.66	66.81	1.965	88.92	39.68	60.32	44.42
1.900	83.48	10.07	89.93	66.24	1.970	89.83	44.64	55.36	40.78

\* This column gives the amount of SO<sub>3</sub> which may be distilled off.

Degrees Baumé.	* Freezing (Melting) Point.	Per Cent 60° Baumé.	Pounds 60° Baumé in 1 Cubic Foot.	Per Cent 50° Baumé.	Pounds 50° Baumé in 1 Cubic Foot.	
60	+12.6	100.00	106.40	124.91	132.91	
61	27.3	102.27	110.10	127.74	137.52	
62	39.1	104.67	114.05	130.75	142.47	
63	46.1	107.30	118.34	134.03	147.82	
64	46.4	110.29	123.14	137.76	153.81	
64½	43.6	111.15	124.49	138.84	155.50	
64½	41.1	112.06	125.89	139.98	157.25	
64½	37.9	113.05	127.40	141.22	159.14	
65	33.1	114.14	129.03	142.57	161.17	
65½	24.6	115.30	130.75	144.02	163.32	
65½	13.4	116.65	132.70	145.71	165.76	
65½	- 1	118.19	134.88	147.63	168.48	
66	-29	119.98	137.34	149.87	171.56	

# XXX. — SULPHURIC ACID

LUNGE AND ISLER

Specific Gravity 15° 4° in vacuo	100 parts by weight correspond to		1 liter contains grams		Specific Gravity 15° 4° in vacuo	100 parts by weight correspond to		1 liter contains grams	
	% SO <sub>3</sub>	% H <sub>2</sub> SO <sub>4</sub>	SO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>		% SO <sub>3</sub>	% H <sub>2</sub> SO <sub>4</sub>	SO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>
1.000	0.07	0.09	1	1	1.190	21.26	26.04	253	310
1.005	0.68	0.83	7	8	1.195	21.78	26.68	260	319
1.010	1.28	1.57	13	16	1.200	22.30	27.32	268	328
1.015	1.88	2.30	19	23	1.205	22.82	27.95	275	337
1.020	2.47	3.03	25	31	1.210	23.33	28.58	282	346
1.025	3.07	3.76	32	39	1.215	23.84	29.21	290	355
1.030	3.67	4.49	38	46	1.220	24.36	29.84	297	364
1.035	4.27	5.23	44	54	1.225	24.88	30.48	305	373
1.040	4.87	5.96	51	62	1.230	25.39	31.11	312	382
1.045	5.45	6.67	57	71	1.235	25.88	31.70	320	391
1.050	6.02	7.37	63	77	1.240	26.35	32.28	327	400
1.055	6.59	8.07	70	85	1.245	26.83	32.86	334	409
1.060	7.16	8.77	76	93	1.250	27.29	33.43	341	418
1.065	7.73	9.47	82	102	1.255	27.76	34.00	348	426
1.070	8.32	10.19	89	109	1.260	28.22	34.57	356	435
1.075	8.90	10.90	96	117	1.265	28.69	35.14	363	444
1.080	9.47	11.60	103	125	1.270	29.15	35.71	370	454
1.085	10.04	12.30	109	133	1.275	29.62	36.29	377	462
1.090	10.60	12.99	116	142	1.280	30.10	36.87	385	472
1.095	11.16	13.67	122	150	1.285	30.57	37.45	393	481
1.100	11.71	14.35	129	158	1.290	31.04	38.03	400	490
1.105	12.27	15.03	136	166	1.295	31.52	38.61	408	500
1.110	12.82	15.71	143	175	1.300	31.99	39.19	416	510
1.115	13.36	16.36	149	183	1.305	32.46	39.77	424	519
1.120	13.89	17.01	156	191	1.310	32.94	40.35	432	529
1.125	14.42	17.66	162	199	1.315	33.41	40.93	439	538
1.130	14.95	18.31	169	207	1.320	33.88	41.50	447	548
1.135	15.48	18.96	176	215	1.325	34.35	42.08	455	557
1.140	16.01	19.61	183	223	1.330	34.80	42.66	462	567
1.145	16.54	20.26	189	231	1.335	35.27	43.20	471	577
1.150	17.07	20.91	196	239	1.340	35.71	43.74	479	586
1.155	17.59	21.55	203	248	1.345	36.14	44.28	486	596
1.160	18.11	22.19	210	257	1.350	36.58	44.82	494	605
1.165	18.64	22.83	217	266	1.355	37.02	45.35	502	614
1.170	19.16	23.47	224	275	1.360	37.45	45.88	509	624
1.175	19.69	24.12	231	283	1.365	37.89	46.41	517	633
1.180	20.21	24.76	238	292	1.370	38.32	46.94	525	643
1.185	20.73	25.40	246	301	1.375	38.75	47.47	533	653



Specific Gravity 15° 4° in vacuo	100 parts by weight correspond to		1 liter contains grams		Specific Gravity 15° 4° in vacuo	100 parts by weight correspond to		1 liter contains grams	
	% SO <sub>3</sub>	% H <sub>2</sub> SO <sub>4</sub>	SO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>		% SO <sub>3</sub>	% H <sub>2</sub> SO <sub>4</sub>	SO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>
1.380	39.18	48.00	541	662	1.590	55.18	67.59	877	1075
1.385	39.62	48.53	549	672	1.595	55.55	68.05	886	1085
1.390	40.05	49.06	557	682	1.600	55.93	68.51	89	1096
1.395	40.48	49.59	564	692	1.605	56.30	68.97	904	1107
1.400	40.91	50.11	573	702	1.610	56.68	69.43	913	1118
1.405	41.33	50.63	581	711	1.615	57.05	69.89	921	1128
1.410	41.76	51.15	589	721	1.620	57.40	70.32	930	1139
1.415	42.17	51.66	597	730	1.625	57.75	70.74	938	1150
1.420	42.57	52.15	604	740	1.630	58.09	71.16	947	1160
1.425	42.96	52.63	612	750	1.635	58.43	71.57	955	1170
1.430	43.36	53.11	620	759	1.640	58.77	71.99	964	1181
1.435	43.75	53.59	628	769	1.645	59.10	72.40	972	1192
1.440	44.14	54.07	636	779	1.650	59.45	72.82	981	1202
1.445	44.53	54.55	643	789	1.655	59.78	73.23	989	1212
1.450	44.92	55.03	651	798	1.660	60.11	73.64	998	1222
1.455	45.31	55.50	659	808	1.665	60.46	74.07	1007	1233
1.460	45.69	55.97	667	817	1.670	60.82	74.51	1016	1244
1.465	46.07	56.43	675	827	1.675	61.20	74.97	1025	1256
1.470	46.45	56.90	683	837	1.680	61.57	75.42	1034	1267
1.475	46.83	57.37	691	846	1.685	61.93	75.86	1043	1278
1.480	47.21	57.83	699	856	1.690	62.29	76.30	1053	1289
1.485	47.57	58.28	707	865	1.695	62.64	76.73	1062	1301
1.490	47.95	58.74	715	876	1.700	63.00	77.17	1071	1312
1.495	48.34	59.22	723	885	1.705	63.35	77.60	1080	1323
1.500	48.73	59.70	731	896	1.710	63.70	78.04	1089	1334
1.505	49.12	60.18	739	906	1.715	64.07	78.48	1099	1346
1.510	49.51	60.65	748	916	1.720	64.43	78.92	1108	1357
1.515	49.89	61.12	756	926	1.725	64.78	79.36	1118	1369
1.520	50.28	61.59	764	936	1.730	65.14	79.80	1127	1381
1.525	50.66	62.06	773	946	1.735	65.50	80.24	1136	1392
1.530	51.04	62.53	781	957	1.740	65.86	80.68	1146	1404
1.535	51.43	63.00	789	967	1.745	66.22	81.12	1156	1416
1.540	51.78	63.43	797	977	1.750	66.58	81.56	1165	1427
1.545	52.12	63.85	805	987	1.755	66.94	82.00	1175	1439
1.550	52.46	64.26	813	996	1.760	67.30	82.44	1185	1451
1.555	52.79	64.67	821	1006	1.765	67.65	82.88	1194	1463
1.560	53.12	65.08	829	1015	1.770	68.02	83.32	1204	1475
1.565	53.46	65.49	837	1025	1.775	68.49	83.90	1216	1489
1.570	53.80	65.90	845	1035	1.780	68.98	84.50	1228	1504
1.575	54.13	66.30	853	1044	1.785	69.47	85.10	1240	1519
1.580	54.46	66.71	861	1054	1.790	69.96	85.70	1252	1534
1.585	54.80	67.13	869	1064	1.795	70.46	86.30	1265	1549

Specific Gravity 15° 4° in vacuo	100 parts by weight correspond to		1 liter contains grams		Specific Gravity 15° 4° in vacuo	100 parts by weight correspond to		1 liter contains grams	
	% SO <sub>2</sub>	% H <sub>2</sub> SO <sub>4</sub>	SO <sub>2</sub>	H <sub>2</sub> SO <sub>4</sub>		% SO <sub>2</sub>	% H <sub>2</sub> SO <sub>4</sub>	SO <sub>2</sub>	H <sub>2</sub> SO <sub>4</sub>
1.800	70.94	86.90	1277	1564	1.833	75.72	92.75	1388	1700
1.805	71.50	87.60	1291	1581	1.834	75.96	93.05	1393	1706
1.810	72.08	88.30	1305	1598	1.835	76.27	93.43	1400	1713
1.815	72.69	89.05	1319	1621	1.836	76.57	93.80	1405	1722
1.820	73.51	90.05	1338	1639	1.837	76.90	94.20	1412	1730
1.821	73.63	90.20	1341	1643	1.838	77.23	94.60	1419	1739
1.822	73.80	90.40	1345	1647	1.839	77.55	95.00	1426	1748
1.823	73.96	90.60	1348	1651	1.840	78.04	95.60	1436	1759
1.824	74.12	90.80	1352	1656	1.8405	78.33	95.95	1441	1765
1.825	74.29	91.00	1356	1661	1.8410	79.19	97.00	1458	1786
1.826	74.49	91.25	1360	1666	1.8415	79.76	97.70	1469	1799
1.827	74.69	91.50	1364	1671	1.8410	80.16	98.20	1476	1808
1.828	74.86	91.70	1368	1676	1.8405	80.57	98.70	1483	1816
1.829	75.03	91.90	1372	1681	1.8400	80.98	99.20	1490	1825
1.830	75.19	92.10	1376	1685	1.8395	81.18	99.45	1494	1830
1.831	75.35	92.30	1380	1690	1.8390	81.39	99.70	1497	1834
1.832	75.53	92.52	1384	1695	1.8385	81.59	99.95	1500	1838

# XXXI.—PERCENTAGE OF SULPHUR TRIOXIDE AND SULPHURIC ACID IN FUMING SULPHURIC ACID

GNEHM

Total SO <sub>2</sub> as found by titration.	The acid contains %		Total SO <sub>2</sub> as found by titration.	The acid contains %		Total SO <sub>2</sub> as found by titration.	The acid contains %	
	H <sub>2</sub> SO <sub>4</sub>	SO <sub>3</sub>		H <sub>2</sub> SO <sub>4</sub>	SO <sub>3</sub>		H <sub>2</sub> SO <sub>4</sub>	SO <sub>3</sub>
81.8326	100	0	87.8775	66	34	93.9389	33	67
81.8163	99	1	88.0612	65	35	94.1224	32	68
82.0000	98	2	88.2448	64	36	94.3061	31	69
82.1836	97	3	88.4285	63	37	94.4897	30	70
82.3674	96	4	88.6122	62	38	94.6734	29	71
82.5510	95	5	88.7959	61	39	94.8571	28	72
82.7346	94	6	88.9795	60	40	95.0408	27	73
82.9183	93	7	89.1632	59	41	95.2244	26	74
83.1020	92	8	89.3469	58	42	95.4081	25	75
83.2857	91	9	89.5306	57	43	95.5918	24	76
83.4693	90	10	89.7142	56	44	95.7755	23	77
83.6530	89	11	89.8979	55	45	95.9591	22	78
83.8367	88	12	90.0816	54	46	96.1428	21	79
84.0204	87	13	90.2653	53	47	96.3265	20	80
84.2040	86	14	90.4489	52	48	96.5102	19	81
84.3877	85	15	90.6326	51	49	96.6938	18	82
84.5714	84	16	90.8163	50	50	96.8775	17	83
84.7551	83	17	91.0000	49	51	97.0612	16	84
84.9387	82	18	91.1836	48	52	97.2448	15	85
85.1224	81	19	91.3673	47	53	97.4285	14	86
85.3061	80	20	91.5510	46	54	97.6122	13	87
85.4897	79	21	91.7346	45	55	97.7959	12	88
85.6734	78	22	91.9183	44	56	97.9795	11	89
85.8571	77	23	92.1020	43	57	98.1632	10	90
86.0408	76	24	92.2857	42	58	98.3469	9	91
86.2244	75	25	92.4693	41	59	98.5306	8	92
86.4081	74	26	92.6530	40	60	98.7142	7	93
86.5918	73	27	92.8367	39	61	98.8979	6	94
86.7755	72	28	93.0204	38	62	99.0816	5	95
86.9591	71	29	93.2040	37	63	99.2753	4	96
87.1428	70	30	93.3877	36	64	99.4489	3	97
87.3265	69	31	93.5714	35	65	99.6326	2	98
87.5102	68	32	93.7551	34	66	99.8163	1	99
87.6938	67	33						

# XXXII. — NITRIC ACID

By W. C. FERGUSON

Degrees Baumé.	Sp. Gr. 60° F.	Degrees Twaddell.	Per Cent HNO <sub>3</sub> .	Degrees Baumé.	Sp. Gr. 60° F.	Degrees Twaddell.	Per Cent HNO <sub>3</sub> .
10.00	1.0741	14.82	12.86	21.25	1.1718	34.36	28.02
10.25	1.0761	15.22	13.18	21.50	1.1741	34.82	28.36
10.50	1.0781	15.62	13.49	21.75	1.1765	35.30	28.72
10.75	1.0801	16.02	13.81	22.00	1.1789	35.78	29.07
11.00	1.0821	16.42	14.13	22.25	1.1813	36.26	29.43
11.25	1.0841	16.82	14.44	22.50	1.1837	36.74	29.78
11.50	1.0861	17.22	14.76	22.75	1.1861	37.22	30.14
11.75	1.0881	17.62	15.07	23.00	1.1885	37.70	30.49
12.00	1.0902	18.04	15.41	23.25	1.1910	38.20	30.86
12.25	1.0922	18.44	15.72	23.50	1.1934	38.68	31.21
12.50	1.0943	18.86	16.05	23.75	1.1959	39.18	31.58
12.75	1.0964	19.28	16.39	24.00	1.1983	39.66	31.94
13.00	1.0985	19.70	16.72	24.25	1.2008	40.16	32.31
13.25	1.1006	20.12	17.05	24.50	1.2033	40.66	32.68
13.50	1.1027	20.54	17.38	24.75	1.2058	41.16	33.05
13.75	1.1048	20.96	17.71	25.00	1.2083	41.66	33.42
14.00	1.1069	21.38	18.04	25.25	1.2109	42.18	33.80
14.25	1.1090	21.80	18.37	25.50	1.2134	42.68	34.17
14.50	1.1111	22.22	18.70	25.75	1.2160	43.20	34.56
14.75	1.1132	22.64	19.02	26.00	1.2185	43.70	34.94
15.00	1.1154	23.08	19.36	26.25	1.2211	44.22	35.33
15.25	1.1176	23.52	19.70	26.50	1.2236	44.72	35.70
15.50	1.1197	23.94	20.02	26.75	1.2262	45.24	36.09
15.75	1.1219	24.38	20.36	27.00	1.2288	45.76	36.48
16.00	1.1240	24.80	20.69	27.25	1.2314	46.28	36.87
16.25	1.1262	25.24	21.03	27.50	1.2340	46.80	37.26
16.50	1.1284	25.68	21.36	27.75	1.2367	47.34	37.67
16.75	1.1306	26.12	21.70	28.00	1.2393	47.86	38.06
17.00	1.1328	26.56	22.04	28.25	1.2420	48.40	38.46
17.25	1.1350	27.00	22.38	28.50	1.2446	48.92	38.85
17.50	1.1373	27.46	22.74	28.75	1.2473	49.46	39.25
17.75	1.1395	27.90	23.08	29.00	1.2500	50.00	39.66
18.00	1.1417	28.34	23.42	29.25	1.2527	50.54	40.06
18.25	1.1440	28.80	23.77	29.50	1.2554	51.08	40.47
18.50	1.1462	29.24	24.11	29.75	1.2582	51.64	40.89
18.75	1.1485	29.70	24.47	30.00	1.2609	52.18	41.30
19.00	1.1508	30.16	24.82	30.25	1.2637	52.74	41.72
19.25	1.1531	30.62	25.18	30.50	1.2664	53.28	42.14
19.50	1.1554	31.08	25.53	30.75	1.2692	53.84	42.58
19.75	1.1577	31.54	25.88	31.00	1.2719	54.38	43.00
20.00	1.1600	32.00	26.24	31.25	1.2747	54.94	43.44
20.25	1.1624	32.48	26.61	31.50	1.2775	55.50	43.89
20.50	1.1647	32.94	26.96	31.75	1.2804	56.08	44.34
20.75	1.1671	33.42	27.33	32.00	1.2832	56.64	44.78
21.00	1.1694	33.88	27.67	32.25	1.2861	57.22	45.24

Degrees Baumé.	Sp. Gr. 60° F.	Degrees Twaddell.	Per Cent HNO <sub>3</sub> .	Degrees Baumé.	Sp. Gr. 60° F.	Degrees Twaddell.	Per Cent HNO <sub>3</sub> .
32.50	1.2889	57.78	45.68	40.75	1.3909	78.18	63.48
32.75	1.2918	58.36	46.14	41.00	1.3942	78.84	64.20
33.00	1.2946	58.92	46.58	41.25	1.3976	79.52	64.93
33.25	1.2975	59.50	47.04	41.50	1.4010	80.20	65.67
33.50	1.3004	60.08	47.49	41.75	1.4044	80.88	66.42
33.75	1.3034	60.68	47.95	42.00	1.4078	81.56	67.18
34.00	1.3063	61.26	48.42	42.25	1.4112	82.24	67.95
34.25	1.3093	61.86	48.90	42.50	1.4146	82.92	68.73
34.50	1.3122	62.44	49.35	42.75	1.4181	83.62	69.52
34.75	1.3152	63.04	49.83	43.00	1.4216	84.32	70.33
35.00	1.3182	63.64	50.32	43.25	1.4251	85.02	71.15
35.25	1.3212	64.24	50.81	43.50	1.4286	85.72	71.98
35.50	1.3242	64.84	51.30	43.75	1.4321	86.42	72.82
35.75	1.3273	65.46	51.80	44.00	1.4356	87.12	73.67
36.00	1.3303	66.06	52.30	44.25	1.4392	87.84	74.53
36.25	1.3334	66.68	52.81	44.50	1.4428	88.56	75.40
36.50	1.3364	67.28	53.32	44.75	1.4464	89.28	76.28
36.75	1.3395	67.90	53.84	45.00	1.4500	90.00	77.17
37.00	1.3426	68.52	54.36	45.25	1.4536	90.72	78.07
37.25	1.3457	69.14	54.89	45.50	1.4573	91.46	79.03
37.50	1.3488	69.76	55.43	45.75	1.4610	92.20	80.04
37.75	1.3520	70.40	55.97	46.00	1.4646	92.92	81.08
38.00	1.3551	71.02	56.52	46.25	1.4684	93.68	82.18
38.25	1.3583	71.66	57.08	46.50	1.4721	94.42	83.33
38.50	1.3615	72.30	57.65	46.75	1.4758	95.16	84.48
38.75	1.3647	72.94	58.23	47.00	1.4796	95.92	85.70
39.00	1.3679	73.58	58.82	47.25	1.4834	96.68	86.98
39.25	1.3712	74.24	59.43	47.50	1.4872	97.44	88.32
39.50	1.3744	74.88	60.06	47.75	1.4910	98.20	89.76
39.75	1.3777	75.54	60.71	48.00	1.4948	98.96	91.35
40.00	1.3810	76.20	61.38	48.25	1.4987	99.74	93.13
40.25	1.3843	76.86	62.07	48.50	1.5026	100.52	95.11
40.50	1.3876	77.52	62.77				

Specific Gravity determinations were made at 60° F., compared with water at 60° F.

From the Specific Gravities, the corresponding degrees Baumé were calculated by the following formula:

$$\text{Baumé} = 145 - \frac{145}{\text{Sp. Gr.}}$$

Baumé Hydrometers for use with this table must be graduated by the above formula, which formula should always be printed on the scale.

Atomic weights from F. W. Clarke's table of 1901. O = 16.

#### ALLOWANCE FOR TEMPERATURE:

At 10° — 20°	Bé. — 1/30°	Bé. or .00029	Sp. Gr. = 1° F.
20° — 30°	Bé. — 1/23°	Bé. or .00044	" " = 1° F.
30° — 40°	Bé. — 1/20°	Bé. or .00060	" " = 1° F.
40° — 48.5°	Bé. — 1/17°	Bé. or .00084	" " = 1° F.

AUTHORITY — W. C. FERGUSON.

This table has been approved and adopted as a Standard by the Manufacturing Chemists' Association of the United States.

New York, May 14, 1903.

W. H. BOWER, JAS. L. MORGAN,  
HENRY HOWARD, ARTHUR WYMAN,  
A. G. ROSENGARTEN, Executive Committee

# XXXIII. — NITRIC ACID

LUNGE AND REY

Specific Gravity 15° 4° in vacuo	100 parts by weight contain		1 liter contains grams		Specific Gravity 15° 4° in vacuo	100 parts by weight contain		1 liter contains grams	
	% N <sub>2</sub> O <sub>5</sub>	% HNO <sub>3</sub>	N <sub>2</sub> O <sub>5</sub>	HNO <sub>3</sub>		% N <sub>2</sub> O <sub>5</sub>	% HNO <sub>3</sub>	N <sub>2</sub> O <sub>5</sub>	HNO <sub>3</sub>
1.000	0.08	0.10	1	1	1.195	27.10	31.62	324	378
1.005	0.85	1.00	8	10	1.200	27.74	32.36	333	388
1.010	1.62	1.90	16	19	1.205	28.36	33.09	342	399
1.015	2.39	2.80	24	28	1.210	28.99	33.82	351	409
1.020	3.17	3.70	33	38	1.215	29.61	34.55	360	420
1.025	3.94	4.60	40	47	1.220	30.24	35.28	369	430
1.030	4.71	5.50	49	57	1.225	30.88	36.03	378	441
1.035	5.47	6.38	57	66	1.230	31.53	36.78	387	452
1.040	6.22	7.26	64	75	1.235	32.17	37.53	397	463
1.045	6.97	8.13	73	85	1.240	32.82	38.29	407	475
1.050	7.71	8.99	81	94	1.245	33.47	39.05	417	486
1.055	8.43	9.84	89	104	1.250	34.13	39.82	427	498
1.060	9.15	10.68	97	113	1.255	34.78	40.58	437	509
1.065	9.87	11.51	105	123	1.260	35.44	41.34	447	521
1.070	10.57	12.33	113	132	1.265	36.09	42.10	457	533
1.075	11.27	13.15	121	141	1.270	36.75	42.87	467	544
1.080	11.96	13.95	129	151	1.275	37.41	43.64	477	556
1.085	12.64	14.74	137	160	1.280	38.07	44.41	487	568
1.090	13.31	15.53	145	169	1.285	38.73	45.18	498	581
1.095	13.99	16.32	153	179	1.290	39.39	45.95	508	593
1.100	14.67	17.11	161	188	1.295	40.05	46.72	519	605
1.105	15.34	17.89	170	198	1.300	40.71	47.49	529	617
1.110	16.00	18.67	177	207	1.305	41.37	48.26	540	630
1.115	16.67	19.45	186	217	1.310	42.06	49.07	551	643
1.120	17.34	20.23	195	227	1.315	42.76	49.89	562	656
1.125	18.00	21.00	202	236	1.320	43.47	50.71	573	669
1.130	18.66	21.77	211	246	1.325	44.17	51.53	585	683
1.135	19.32	22.54	219	256	1.330	44.89	52.37	597	697
1.140	19.98	23.31	228	266	1.3325	45.26	52.80	603	704
1.145	20.64	24.08	237	276	1.335	45.62	53.22	609	710
1.150	21.29	24.84	245	286	1.340	46.35	54.07	621	725
1.155	21.94	25.60	254	296	1.345	47.08	54.93	633	739
1.160	22.60	26.36	262	306	1.350	47.82	55.79	646	753
1.165	23.25	27.12	271	316	1.355	48.57	56.6		
1.170	23.90	27.88	279	326	1.360	49.35	57.4		
1.175	24.54	28.63	288	336	1.365	50.13	58.2		
1.180	25.18	29.38	297	347	1.370	50.91	59.0		
1.185	25.83	30.13	306	357	1.375		59.8		
1.190	26.47	30.88	315	367	1.380				

Specific Gravity 15° 4° in vacuo	100 parts by weight contain		1 liter contains grams		Specific Gravity 15° 4° in vacuo	100 parts by weight contain		1 liter contains grams	
	% N <sub>2</sub> O <sub>5</sub>	% HNO <sub>3</sub>	N <sub>2</sub> O <sub>5</sub>	HNO <sub>3</sub>		% N <sub>2</sub> O <sub>5</sub>	% HNO <sub>3</sub>	N <sub>2</sub> O <sub>5</sub>	HNO <sub>3</sub>
1.3833	53.08	61.92	735	857	1.495	78.52	91.60	1174	1369
1.385	53.35	62.24	739	862	1.500	80.65	94.09	1210	1411
1.390	54.20	63.23	753	879	1.501	81.09	94.60	1217	1420
1.395	55.07	64.25	768	896	1.502	81.50	95.08	1224	1428
1.400	55.97	65.30	783	914	1.503	81.91	95.55	1231	1436
1.405	56.92	66.40	800	933	1.504	82.29	96.00	1238	1444
1.410	57.86	67.50	816	952	1.505	82.63	96.39	1244	1451
1.415	58.83	68.63	832	971	1.506	82.94	96.76	1249	1457
1.420	59.83	69.80	849	991	1.507	83.26	97.13	1255	1464
1.425	60.84	70.98	867	1011	1.508	83.58	97.50	1260	1470
1.430	61.86	72.17	885	1032	1.509	83.87	97.84	1265	1476
1.435	62.91	73.39	903	1053	1.510	84.09	98.10	1270	1481
1.440	64.01	74.68	921	1075	1.511	84.28	98.32	1274	1486
1.445	65.13	75.98	941	1098	1.512	84.46	98.53	1277	1490
1.450	66.24	77.28	961	1121	1.513	84.63	98.73	1280	1494
1.455	67.38	78.60	981	1144	1.514	84.78	98.90	1283	1497
1.460	68.56	79.98	1001	1168	1.515	84.92	99.07	1287	1501
1.465	69.79	81.42	1023	1193	1.516	85.04	99.21	1289	1504
1.470	71.06	82.90	1045	1219	1.517	85.15	99.34	1292	1507
1.475	72.39	84.45	1068	1246	1.518	85.26	99.46	1294	1510
1.480	73.76	86.05	1092	1274	1.519	85.35	99.57	1296	1512
1.485	75.18	87.70	1116	1302	1.520	85.44	99.67	1299	1515
1.490	76.80	89.60	1144	1335					

# XXXIII. — NITRIC ACID

LUNGE AND REY

Specific Gravity 15° 4° in vacuo	100 parts by weight contain		1 liter contains grams		Specific Gravity 15° 4° in vacuo	100 parts by weight contain		1 liter contains grams	
	% N <sub>2</sub> O <sub>5</sub>	% HNO <sub>3</sub>	N <sub>2</sub> O <sub>5</sub>	HNO <sub>3</sub>		% N <sub>2</sub> O <sub>5</sub>	% HNO <sub>3</sub>	N <sub>2</sub> O <sub>5</sub>	HNO <sub>3</sub>
1.000	0.08	0.10	1	1	1.195	27.10	31.62	324	378
1.005	0.85	1.00	8	10	1.200	27.74	32.36	333	388
1.010	1.62	1.90	16	19	1.205	28.36	33.09	342	399
1.015	2.39	2.80	24	28	1.210	28.99	33.82	351	409
1.020	3.17	3.70	33	38	1.215	29.61	34.55	360	420
1.025	3.94	4.60	40	47	1.220	30.24	35.28	369	430
1.030	4.71	5.50	49	57	1.225	30.88	36.03	378	441
1.035	5.47	6.38	57	66	1.230	31.53	36.78	387	452
1.040	6.22	7.26	64	75	1.235	32.17	37.53	397	463
1.045	6.97	8.13	73	85	1.240	32.82	38.29	407	475
1.050	7.71	8.99	81	94	1.245	33.47	39.05	417	486
1.055	8.43	9.84	89	104	1.250	34.13	39.82	427	498
1.060	9.15	10.68	97	113	1.255	34.78	40.58	437	509
1.065	9.87	11.51	105	123	1.260	35.44	41.34	447	521
1.070	10.57	12.33	113	132	1.265	36.09	42.10	457	533
1.075	11.27	13.15	121	141	1.270	36.75	42.87	467	544
1.080	11.96	13.95	129	151	1.275	37.41	43.64	477	556
1.085	12.64	14.74	137	160	1.280	38.07	44.41	487	568
1.090	13.31	15.53	145	169	1.285	38.73	45.18	498	581
1.095	13.99	16.32	153	179	1.290	39.39	45.95	508	593
1.100	14.67	17.11	161	188	1.295	40.05	46.72	519	605
1.105	15.34	17.89	170	198	1.300	40.71	47.49	529	617
1.110	16.00	18.67	177	207	1.305	41.37	48.26	540	630
1.115	16.67	19.45	186	217	1.310	42.06	49.07	551	643
1.120	17.34	20.23	195	227	1.315	42.76	49.89	562	656
1.125	18.00	21.00	202	236	1.320	43.47	50.71	573	669
1.130	18.66	21.77	211	246	1.325	44.17	51.53	585	683
1.135	19.32	22.54	219	256	1.330	44.89	52.37	597	697
1.140	19.98	23.31	228	266	1.3325	45.26	52.80	603	704
1.145	20.64	24.08	237	276	1.335	45.62	53.22	609	710
1.150	21.29	24.84	245	286	1.340	46.35	54.07	621	725
1.155	21.94	25.60	254	296	1.345	47.08	54.93	633	739
1.160	22.60	26.36	262	306	1.350	47.82	55.79	645	753
1.165	23.25	27.12	271	316	1.355	48.57	56.66	658	768
1.170	23.90	27.88	279	326	1.360	49.35	57.57	671	783
1.175	24.54	28.63	288	336	1.365	50.13	58.48	684	798
1.180	25.18	29.38	297	347	1.370	50.91	59.39	698	814
1.185	25.83	30.13	306	357	1.375	51.69	60.30	711	829
1.190	26.47	30.88	315	367	1.380	52.52	61.27	725	846



Specific Gravity 15° 4° in vacuo	100 parts by weight contain		1 liter con- tains grams		Specific Gravity 15° 4° in vacuo	100 parts by weight contain		1 liter con- tains grams	
	% N <sub>2</sub> O <sub>5</sub>	% HNO <sub>3</sub>	N <sub>2</sub> O <sub>5</sub>	HNO <sub>3</sub>		% N <sub>2</sub> O <sub>5</sub>	% HNO <sub>3</sub>	N <sub>2</sub> O <sub>5</sub>	HNO <sub>3</sub>
1.3833	53.08	61.92	735	857	1.495	78.52	91.60	1174	1369
1.385	53.35	62.24	739	862	1.500	80.65	94.09	1210	1411
1.390	54.20	63.23	753	879	1.501	81.09	94.60	1217	1420
1.395	55.07	64.25	768	896	1.502	81.50	95.08	1224	1428
1.400	55.97	65.30	783	914	1.503	81.91	95.55	1231	1436
1.405	56.92	66.40	800	933	1.504	82.29	96.00	1238	1444
1.410	57.86	67.50	816	952	1.505	82.63	96.39	1244	1451
1.415	58.83	68.63	832	971	1.506	82.94	96.76	1249	1457
1.420	59.83	69.80	849	991	1.507	83.26	97.13	1255	1464
1.425	60.84	70.98	867	1011	1.508	83.58	97.50	1260	1470
1.430	61.86	72.17	885	1032	1.509	83.87	97.84	1265	1476
1.435	62.91	73.39	903	1053	1.510	84.09	98.10	1270	1481
1.440	64.01	74.68	921	1075	1.511	84.28	98.32	1274	1486
1.445	65.13	75.98	941	1098	1.512	84.46	98.53	1277	1490
1.450	66.24	77.28	961	1121	1.513	84.63	98.73	1280	1494
1.455	67.38	78.60	981	1144	1.514	84.78	98.90	1283	1497
1.460	68.56	79.98	1001	1168	1.515	84.92	99.07	1287	1501
1.465	69.79	81.42	1023	1193	1.516	85.04	99.21	1289	1504
1.470	71.06	82.90	1045	1219	1.517	85.15	99.34	1292	1507
1.475	72.39	84.45	1068	1246	1.518	85.26	99.46	1294	1510
1.480	73.76	86.05	1092	1274	1.519	85.35	99.57	1296	1512
1.485	75.18	87.70	1116	1302	1.520	85.44	99.67	1299	1515
1.490	76.80	89.60	1144	1335					

# XXXIV.—HYDROCHLORIC ACID

By W. C. FERGUSON

Degrees Baumé.	Sp. Gr.	Degrees Twaddell.	Per Cent HCl.	Degrees Baumé.	Sp. Gr.	Degrees Twaddell.	Per Cent HCl.
1.00	1.0069	1.38	1.40	14.25	1.1090	21.80	21.68
2.00	1.0140	2.80	2.82	14.50	1.1111	22.22	22.09
3.00	1.0211	4.22	4.25	14.75	1.1132	22.64	22.50
4.00	1.0284	5.68	5.69	15.00	1.1154	23.08	22.92
5.00	1.0357	7.14	7.15	15.25	1.1176	23.52	23.33
5.25	1.0375	7.50	7.52	15.50	1.1197	23.94	23.75
5.50	1.0394	7.88	7.89	15.75	1.1219	24.38	24.16
5.75	1.0413	8.26	8.26	16.0	1.1240	24.80	24.57
6.00	1.0432	8.64	8.64	16.1	1.1248	24.96	24.73
6.25	1.0450	9.00	9.02	16.2	1.1256	25.12	24.90
6.50	1.0469	9.38	9.40	16.3	1.1265	25.30	25.06
6.75	1.0488	9.76	9.78	16.4	1.1274	25.48	25.23
7.00	1.0507	10.14	10.17	16.5	1.1283	25.66	25.39
7.25	1.0526	10.52	10.55	16.6	1.1292	25.84	25.56
7.50	1.0545	10.90	10.94	16.7	1.1301	26.02	25.72
7.75	1.0564	11.28	11.32	16.8	1.1310	26.20	25.89
8.00	1.0584	11.68	11.71	16.9	1.1319	26.38	26.05
8.25	1.0603	12.06	12.09	17.0	1.1328	26.56	26.22
8.50	1.0623	12.46	12.48	17.1	1.1336	26.72	26.39
8.75	1.0642	12.84	12.87	17.2	1.1345	26.90	26.56
9.00	1.0662	13.24	13.26	17.3	1.1354	27.08	26.73
9.25	1.0681	13.62	13.65	17.4	1.1363	27.26	26.90
9.50	1.0701	14.02	14.04	17.5	1.1372	27.44	27.07
9.75	1.0721	14.42	14.43	17.6	1.1381	27.62	27.24
10.00	1.0741	14.82	14.83	17.7	1.1390	27.80	27.41
10.25	1.0761	15.22	15.22	17.8	1.1399	27.98	27.58
10.50	1.0781	15.62	15.62	17.9	1.1408	28.16	27.75
10.75	1.0801	16.02	16.01	18.0	1.1417	28.34	27.92
11.00	1.0821	16.42	16.41	18.1	1.1426	28.52	28.09
11.25	1.0841	16.82	16.81	18.2	1.1435	28.70	28.26
11.50	1.0861	17.22	17.21	18.3	1.1444	28.88	28.44
11.75	1.0881	17.62	17.61	18.4	1.1453	29.06	28.61
12.00	1.0902	18.04	18.01	18.5	1.1462	29.24	28.78
12.25	1.0922	18.44	18.41	18.6	1.1471	29.42	28.95
12.50	1.0943	18.86	18.82	18.7	1.1480	29.60	29.13
12.75	1.0964	19.28	19.22	18.8	1.1489	29.78	29.30
13.00	1.0985	19.70	19.63	18.9	1.1498	29.96	29.48
13.25	1.1006	20.12	20.04	19.0	1.1508	30.16	29.65
13.50	1.1027	20.54	20.45	19.1	1.1517	30.34	29.83
13.75	1.1048	20.96	20.86	19.2	1.1526	30.52	30.00
14.00	1.1069	21.38	21.27	19.3	1.1535	30.70	30.18

Degrees Baumé.	Sp. Gr.	Degrees Twaddell.	Per Cent HCl.	Degrees Baumé.	Sp. Gr.	Degrees Twaddell.	Per Cent HCl.
19.4	1.1544	30.88	30.35	22.5	1.1836	36.72	36.16
19.5	1.1554	31.08	30.53	22.6	1.1846	36.92	36.35
19.6	1.1563	31.26	30.71	22.7	1.1856	37.12	36.54
19.7	1.1572	31.44	30.90	22.8	1.1866	37.32	36.73
19.8	1.1581	31.62	31.08	22.9	1.1875	37.50	36.93
19.9	1.1590	31.80	31.27	23.0	1.1885	37.70	37.14
20.0	1.1600	32.00	31.45	23.1	1.1895	37.90	37.36
20.1	1.1609	32.18	31.64	23.2	1.1904	38.08	37.58
20.2	1.1619	32.38	31.82	23.3	1.1914	38.28	37.80
20.3	1.1628	32.56	32.01	23.4	1.1924	38.48	38.03
20.4	1.1637	32.74	32.19	23.5	1.1934	38.68	38.26
20.5	1.1647	32.94	32.38	23.6	1.1944	38.88	38.49
20.6	1.1656	33.12	32.56	23.7	1.1953	39.06	38.72
20.7	1.1666	33.32	32.75	23.8	1.1963	39.26	38.95
20.8	1.1675	33.50	32.93	23.9	1.1973	39.46	39.18
20.9	1.1684	33.68	33.12	24.0	1.1983	39.66	39.41
21.0	1.1694	33.88	33.31	24.1	1.1993	39.86	39.64
21.1	1.1703	34.06	33.50	24.2	1.2003	40.06	39.86
21.2	1.1713	34.26	33.69	24.3	1.2013	40.26	40.09
21.3	1.1722	34.44	33.88	24.4	1.2023	40.46	40.32
21.4	1.1732	34.64	34.07	24.5	1.2033	40.66	40.55
21.5	1.1741	34.82	34.26	24.6	1.2043	40.86	40.78
21.6	1.1751	35.02	34.45	24.7	1.2053	41.06	41.01
21.7	1.1760	35.20	34.64	24.8	1.2063	41.26	41.24
21.8	1.1770	35.40	34.83	24.9	1.2073	41.46	41.48
21.9	1.1779	35.58	35.02	25.0	1.2083	41.66	41.72
22.0	1.1789	35.78	35.21	25.1	1.2093	41.86	41.99
22.1	1.1798	35.96	35.40	25.2	1.2103	42.06	42.30
22.2	1.1808	36.16	35.59	25.3	1.2114	42.28	42.64
22.3	1.1817	36.34	35.78	25.4	1.2124	42.48	43.01
22.4	1.1827	36.54	35.97	25.5	1.2134	42.68	43.40

Sp. Gr. determinations were made at 60° F., compared with water at 60° F.

From the Specific Gravities, the corresponding degrees Baumé were calculated by the following formula: Baumé =  $145 - 145/\text{Sp. Gr.}$

Atomic weights from F. W. Clarke's table of 1901. O = 16.

#### ALLOWANCE FOR TEMPERATURE:

10–15° Bé. —  $1/40^\circ$  Bé. or .0002 Sp. Gr. for 1° F.

15–22° Bé. —  $1/30^\circ$  Bé. or .0003 “ “ “ 1° F.

22–25° Bé. —  $1/28^\circ$  Bé. or .00035 “ “ “ 1° F.

AUTHORITY — W. C. FERGUSON.

This table has been approved and adopted as a Standard by the Manufacturing Chemists' Association of the United States.

W. H. BOWER, JAS. L. MORGAN,  
HENRY HOWARD, ARTHUR WYMAN,  
A. G. ROSENGARTEN,

New York, May 14, 1903.

*Executive Committee.*

# XXXV. — HYDROCHLORIC ACID

LUNGE AND MARCHLENSKI

Specific Gravity. 15° 4° in Vacuo.	Per Cent HCl by Weight.	1 Liter con- tains Grams HCl.	Specific Gravity 15° 4° in Vacuo.	Per Cent HCl by Weight.	1 Liter con- tains Grams HCl.	Specific Gravity 15° 4° in Vacuo.	Per Cent HCl by Weight.	1 Liter con- tains Grams HCl.
1.000	0.16	1.6	1.075	15.16	163	1.145	28.61	328
1.005	1.15	12	1.080	16.15	174	1.150	29.57	340
1.010	2.14	22	1.085	17.13	186	1.152	29.95	345
1.015	3.12	32	1.090	18.11	197	1.155	30.55	353
1.020	4.13	42	1.095	19.06	209	1.160	31.52	366
1.025	5.15	53	1.100	20.01	220	1.163	32.10	373
1.030	6.15	64	1.105	20.97	232	1.165	32.49	379
1.035	7.15	74	1.110	21.92	243	1.170	33.46	392
1.040	8.16	85	1.115	22.86	255	1.171	33.65	394
1.045	9.16	96	1.120	23.82	267	1.175	34.42	404
1.050	10.17	107	1.125	24.78	278	1.180	35.39	418
1.055	11.18	118	1.130	25.75	291	1.185	36.31	430
1.060	12.19	129	1.135	26.70	303	1.190	37.23	443
1.065	13.19	141	1.140	27.66	315	1.195	38.16	456
1.070	14.17	152	1.1425	28.14	322	1.200	39.11	469

# XXXVI.—ACETIC ACID AT 15°

OUDEMANS

Specific Gravity.	Per Cent $\text{H}_2\text{C}_2\text{H}_3\text{O}_2$ .	Specific Gravity.	Per Cent $\text{H}_2\text{C}_2\text{H}_3\text{O}_2$ .	Specific Gravity.	Per Cent $\text{H}_2\text{C}_2\text{H}_3\text{O}_2$ .	Specific Gravity.	Per Cent $\text{H}_2\text{C}_2\text{H}_3\text{O}_2$ .
0.9992	0	1.0363	26	1.0623	51	1.0747	76
1.0007	1	1.0375	27	1.0631	52	1.0748	77
1.0022	2	1.0388	28	1.0638	53	1.0748	78
1.0037	3	1.0400	29	1.0646	54	1.0748	79
1.0052	4	1.0412	30	1.0653	55	1.0748	80
1.0067	5	1.0424	31	1.0660	56	1.0747	81
1.0083	6	1.0436	32	1.0666	57	1.0746	82
1.0098	7	1.0447	33	1.0673	58	1.0744	83
1.0113	8	1.0459	34	1.0679	59	1.0742	84
1.0127	9	1.0470	35	1.0685	60	1.0739	85
1.0142	10	1.0481	36	1.0691	61	1.0736	86
1.0157	11	1.0492	37	1.0697	62	1.0731	87
1.0171	12	1.0502	38	1.0702	63	1.0726	88
1.0185	13	1.0513	39	1.0707	64	1.0720	89
1.0200	14	1.0523	40	1.0712	65	1.0713	90
1.0214	15	1.0533	41	1.0717	66	1.0705	91
1.0228	16	1.0543	42	1.0721	67	1.0696	92
1.0242	17	1.0552	43	1.0725	68	1.0686	93
1.0256	18	1.0562	44	1.0729	69	1.0674	94
1.0270	19	1.0571	45	1.0733	70	1.0660	95
1.0284	20	1.0580	46	1.0737	71	1.0644	96
1.0298	21	1.0589	47	1.0740	72	1.0625	97
1.0311	22	1.0598	48	1.0742	73	1.0604	98
1.0324	23	1.0607	49	1.0744	74	1.0580	99
1.0337	24	1.0615	50	1.0746	75	1.0553	100
1.0350	25						

# XXXVII.—PHOSPHORIC ACID AT 17.5°

HAGER

Specific Gravity.	Per Cent. $P_2O_5$ .	Per Cent. $H_3PO_4$ .	Specific Gravity.	Per Cent. $P_2O_5$ .	Per Cent. $H_3PO_4$ .	Specific Gravity.	Per Cent. $P_2O_5$ .	Per Cent. $H_3PO_4$ .
1.809	68.0	93.67	1.462	46.0	63.37	1.208	24.0	33.06
1.800	67.5	92.99	1.455	45.5	62.68	1.203	23.5	32.37
1.792	67.0	92.30	1.448	45.0	61.99	1.198	23.0	31.68
1.783	66.5	91.61	1.441	44.5	61.30	1.193	22.5	30.99
1.775	66.0	90.92	1.435	44.0	60.61	1.188	22.0	30.31
1.766	65.5	90.23	1.428	43.5	59.92	1.183	21.5	29.62
1.758	65.0	89.54	1.422	43.0	59.23	1.178	21.0	28.93
1.750	64.5	88.85	1.415	42.5	58.55	1.174	20.5	28.24
1.741	64.0	88.16	1.409	42.0	57.86	1.169	20.0	27.55
1.733	63.5	87.48	1.402	41.5	57.17	1.164	19.5	26.86
1.725	63.0	86.79	1.396	41.0	56.48	1.159	19.0	26.17
1.717	62.5	86.10	1.389	40.5	55.79	1.155	18.5	25.48
1.709	62.0	85.41	1.383	40.0	55.10	1.150	18.0	24.80
1.701	61.5	84.72	1.377	39.5	54.41	1.145	17.5	24.11
1.693	61.0	84.03	1.371	39.0	53.72	1.140	17.0	23.42
1.685	60.5	83.34	1.365	38.5	53.04	1.135	16.5	22.73
1.677	60.0	82.65	1.359	38.0	52.35	1.130	16.0	22.04
1.669	59.5	81.97	1.354	37.5	51.66	1.126	15.5	21.35
1.661	59.0	81.28	1.348	37.0	50.97	1.122	15.0	20.66
1.653	58.5	80.59	1.342	36.5	50.28	1.118	14.5	19.97
1.645	58.0	79.90	1.336	36.0	49.59	1.113	14.0	19.28
1.637	57.5	79.21	1.330	35.5	48.90	1.109	13.5	18.60
1.629	57.0	78.52	1.325	35.0	48.21	1.104	13.0	17.91
1.621	56.5	77.83	1.319	34.5	47.52	1.100	12.5	17.22
1.613	56.0	77.14	1.314	34.0	46.84	1.096	12.0	16.53
1.605	55.5	76.45	1.308	33.5	46.15	1.091	11.5	15.84
1.597	55.0	75.77	1.303	33.0	45.46	1.087	11.0	15.15
1.589	54.5	75.08	1.298	32.5	44.77	1.083	10.5	14.46
1.581	54.0	74.39	1.292	32.0	44.08	1.079	10.0	13.77
1.574	53.5	73.70	1.287	31.5	43.39	1.074	9.5	13.09
1.566	53.0	73.01	1.281	31.0	42.70	1.070	9.0	12.40
1.559	52.5	72.32	1.276	30.5	42.01	1.066	8.5	11.71
1.551	52.0	71.63	1.271	30.0	41.33	1.062	8.0	11.02
1.543	51.5	70.94	1.265	29.5	40.64	1.058	7.5	10.33
1.536	51.0	70.26	1.260	29.0	39.95	1.053	7.0	9.64
1.528	50.5	69.57	1.255	28.5	39.26	1.049	6.5	8.95
1.521	50.0	68.88	1.249	28.0	38.57	1.045	6.0	8.26
1.513	49.5	68.19	1.244	27.5	37.88	1.041	5.5	7.57
1.505	49.0	67.50	1.239	27.0	37.19	1.037	5.0	6.89
1.498	48.5	66.81	1.233	26.5	36.50	1.033	4.5	6.20
1.491	48.0	66.12	1.228	26.0	35.82	1.029	4.0	5.51
1.484	47.5	65.43	1.223	25.5	35.13	1.025	3.5	4.82
1.476	47.0	64.75	1.218	25.0	34.44	1.021	3.0	4.13
1.469	46.5	64.06	1.213	24.5	33.75	1.017	2.5	3.44

# XXXVIII. — AQUA AMMONIA

ACCORDING TO W. C. FERGUSON

Degrees Baumé.	Sp. Gr. 60° F.	Per Cent NH <sub>3</sub> .	Degrees Baumé.	Sp. Gr. 60° F.	Per Cent NH <sub>3</sub> .	Degrees Baumé.	Sp. Gr. 60° F.	Per Cent NH <sub>3</sub> .
10.00	1.0000	.00	16.50	.9556	11.18	23.00	.9150	23.52
10.25	.9982	.40	16.75	.9540	11.64	23.25	.9135	24.01
10.50	.9964	.80	17.00	.9524	12.10	23.50	.9121	24.50
10.75	.9947	1.21	17.25	.9508	12.56	23.75	.9106	24.99
11.00	.9929	1.62	17.50	.9492	13.02	24.00	.9091	25.48
11.25	.9912	2.04	17.75	.9475	13.49	24.25	.9076	25.97
11.50	.9894	2.46	18.00	.9459	13.96	24.50	.9061	26.46
11.75	.9876	2.88	18.25	.9444	14.43	24.75	.9047	26.95
12.00	.9859	3.30	18.50	.9428	14.90	25.00	.9032	27.44
12.25	.9842	3.73	18.75	.9412	15.37	25.25	.9018	27.93
12.50	.9825	4.16	19.00	.9396	15.84	25.50	.9003	28.42
12.75	.9807	4.59	19.25	.9380	16.32	25.75	.8989	28.91
13.00	.9790	5.02	19.50	.9365	16.80	26.00	.8974	29.40
13.25	.9773	5.45	19.75	.9349	17.28	26.25	.8960	29.89
13.50	.9756	5.88	20.00	.9333	17.76	26.50	.8946	30.38
13.75	.9739	6.31	20.25	.9318	18.24	26.75	.8931	30.87
14.00	.9722	6.74	20.50	.9302	18.72	27.00	.8917	31.36
14.25	.9705	7.17	20.75	.9287	19.20	27.25	.8903	31.85
14.50	.9689	7.61	21.00	.9272	19.68	27.50	.8889	32.34
14.75	.9672	8.05	21.25	.9256	20.16	27.75	.8875	32.83
15.00	.9655	8.49	21.50	.9241	20.64	28.00	.8861	33.32
15.25	.9639	8.93	21.75	.9226	21.12	28.25	.8847	33.81
15.50	.9622	9.38	22.00	.9211	21.60	28.50	.8833	34.30
15.75	.9605	9.83	22.25	.9195	22.08	28.75	.8819	34.79
16.00	.9589	10.28	22.50	.9180	22.56	29.00	.8805	35.28
16.25	.9573	10.73	22.75	.9165	23.04			

Specific Gravity determinations were made at 60° F., compared with water at 60° F.

From the Specific Gravities the corresponding degrees Baumé were calculated by the following formula:

$$\text{Baumé} = \frac{140}{\text{Sp. Gr.}} - 130.$$

\* Baumé Hydrometers for use with this table must be graduated by the above formula, which formula should *always* be printed on the scale.

Atomic weights from F. W. Clarke's table of 1901. O = 16.

## ALLOWANCE FOR TEMPERATURE

The coefficient of expansion for ammonia solutions, varying with the temperature, correction must be applied according to the following table:

Corrections to be Added for Each Degree Below 60° F.			Corrections to be Subtracted for Each Degree Above 60° F.			
Degrees Baumé.	40° F.	50° F.	70° F.	80° F.	90° F.	100° F.
14° Bé	.015° Bé	.017° Bé	.020° Bé	.022° Bé	.024° Bé	.026° Bé
16°	.021 "	.023 "	.026 "	.028 "	.030 "	.032 "
18°	.027 "	.029 "	.031 "	.033 "	.035 "	.037 "
20°	.033 "	.036 "	.037 "	.038 "	.040 "	.042 "
22°	.039 "	.042 "	.043 "	.045 "	.047 "	
26°	.053 "	.057 "	.057 "	.059 "		

AUTHORITY — W. C. FERGUSON.

This table has been approved and adopted as a Standard by the Manufacturing Chemists' Association of the United States.

W. H. BOWER,  
HENRY HOWARD,  
JAS. L. MORGAN,  
ARTHUR WYMAN,  
A. G. ROSENGARTEN,  
*Executive Committee.*

New York, May 14, 1903.



# XXXIX.—SODIUM HYDROXIDE SOLUTION AT 15°

LUNGE

Specific Gravity.	Degrees Baumé.	Degrees Twaddell.	Per Cent Na <sub>2</sub> O.	Per Cent NaOH.	1 Liter contains Grams	
					Na <sub>2</sub> O.	NaOH.
1.007	1.0	1.4	0.47	0.61	4	6
1.014	2.0	2.8	0.93	1.20	9	12
1.022	3.1	4.4	1.55	2.00	16	21
1.029	4.1	5.8	2.10	2.70	22	28
1.036	5.1	7.2	2.60	3.35	27	35
1.045	6.2	9.0	3.10	4.00	32	42
1.052	7.2	10.4	3.60	4.64	38	49
1.060	8.2	12.0	4.10	5.29	43	56
1.067	9.1	13.4	4.55	5.87	49	63
1.075	10.1	15.0	5.08	6.55	55	70
1.083	11.1	16.6	5.67	7.31	61	79
1.091	12.1	18.2	6.20	8.00	68	87
1.100	13.2	20.0	6.73	8.68	74	95
1.108	14.1	21.6	7.30	9.42	81	104
1.116	15.1	23.2	7.80	10.06	87	112
1.125	16.1	25.0	8.50	10.97	96	123
1.134	17.1	26.8	9.18	11.84	104	134
1.142	18.0	28.4	9.80	12.64	112	144
1.152	19.1	30.4	10.50	13.55	121	156
1.162	20.2	32.4	11.14	14.37	129	167
1.171	21.2	34.2	11.73	15.13	137	177
1.180	22.1	36.0	12.33	15.91	146	188
1.190	23.1	38.0	13.00	16.77	155	200
1.200	24.2	40.0	13.70	17.67	164	212
1.210	25.2	42.0	14.40	18.58	174	225
1.220	26.1	44.0	15.18	19.58	185	239
1.231	27.2	46.2	15.96	20.59	196	253
1.241	28.2	48.2	16.76	21.42	208	266
1.252	29.2	50.4	17.55	22.64	220	283
1.263	30.2	52.6	18.35	23.67	232	299
1.274	31.2	54.8	19.23	24.81	245	316
1.285	32.2	57.0	20.00	25.80	257	332
1.297	33.2	59.4	20.80	26.83	270	348
1.308	34.1	61.6	21.55	27.80	282	364
1.320	35.2	64.0	22.35	28.83	295	381
1.332	36.1	66.4	23.20	29.93	309	399
1.345	37.2	69.0	24.20	31.22	326	420

Specific Gravity.	Degrees Baumé.	Degrees Twaddell.	Per Cent $\text{Na}_2\text{O}$ .	Per Cent $\text{NaOH}$ .	1 Liter contains Grams	
					$\text{Na}_2\text{O}$ .	$\text{NaOH}$ .
1.357	38.1	71.4	25.17	32.47	342	441
1.370	39.2	74.0	26.12	33.69	359	462
1.383	40.2	76.6	27.10	34.96	375	483
1.397	41.2	79.4	28.10	36.25	392	506
1.410	42.2	82.0	29.05	37.47	410	528
1.424	43.2	84.8	30.08	38.80	428	553
1.438	44.2	87.6	31.00	39.99	446	575
1.453	45.2	90.6	32.10	41.41	466	602
1.468	46.2	93.6	33.20	42.83	487	629
1.483	47.2	96.6	34.40	44.38	510	658
1.498	48.2	99.6	35.70	46.15	535	691
1.514	49.2	102.8	36.90	47.60	559	721
1.530	50.2	106.0	38.00	49.02	581	750

## XL. — POTASSIUM HYDROXIDE SOLUTION AT 15°

LUNGE

Specific Gravity.	Degrees Baumé.	Degrees Twaddell.	Per Cent $\text{K}_2\text{O}$ .	Per Cent $\text{KOH}$ .	1 Liter contains Grams	
					$\text{K}_2\text{O}$ .	$\text{KOH}$ .
1.007	1.0	1.4	0.7	0.9	7	9
1.014	2.0	2.8	1.4	1.7	14	17
1.022	3.1	4.4	2.2	2.6	22	26
1.029	4.1	5.8	2.9	3.5	30	36
1.037	5.2	7.4	3.8	4.5	39	46
1.045	6.2	9.0	4.7	5.6	49	58
1.052	7.2	10.4	5.4	6.4	57	67
1.060	8.2	12.0	6.2	7.4	66	78
1.067	9.1	13.4	6.9	8.2	74	83
1.075	10.1	15.0	7.7	9.2	83	99
1.083	11.1	16.6	8.5	10.1	92	109
1.091	12.1	18.2	9.2	10.9	100	119
1.100	13.2	20.0	10.1	12.0	111	132
1.108	14.1	21.6	10.8	12.9	119	143
1.116	15.1	23.2	11.6	13.8	129	153

Specific Gravity.	Degrees Baumé.	Degrees Twaddell.	Per Cent $K_2O$ .	Per Cent KOH.	1 Liter contains Grams	
					$K_2O$ .	KOH.
1.125	16.1	25.0	12.4	14.8	140	167
1.134	17.1	26.8	13.2	15.7	150	178
1.142	18.0	28.4	13.9	16.5	159	183
1.152	19.1	30.4	14.8	17.6	170	203
1.162	20.2	32.4	15.6	18.6	181	216
1.171	21.2	34.2	16.4	19.5	192	228
1.180	22.1	36.0	17.2	20.5	203	242
1.190	23.1	38.0	18.0	21.4	214	255
1.200	24.2	40.0	18.8	22.4	226	269
1.210	25.2	42.0	19.6	23.3	237	282
1.220	26.1	44.0	20.3	24.2	248	295
1.231	27.2	46.2	21.1	25.1	260	309
1.241	28.2	48.2	21.9	26.1	272	324
1.252	29.2	50.4	22.7	27.0	284	338
1.263	30.2	52.6	23.5	28.0	297	353
1.274	31.2	54.8	24.2	28.9	308	368
1.285	32.2	57.0	25.0	29.8	321	385
1.297	33.2	59.4	25.8	30.7	335	398
1.308	34.1	61.6	26.7	31.8	349	416
1.320	35.2	64.0	27.5	32.7	363	432
1.332	36.1	66.4	28.3	33.7	377	449
1.345	37.2	69.0	29.3	34.9	394	469
1.357	38.1	71.4	30.2	35.9	410	487
1.370	39.2	74.0	31.0	36.9	425	506
1.383	40.2	76.6	31.8	37.8	440	522
1.397	41.2	79.4	32.7	38.9	457	543
1.410	42.2	82.0	33.5	39.9	472	563
1.424	43.2	84.8	34.4	40.9	490	582
1.438	44.2	87.6	35.4	42.1	509	605
1.453	45.2	90.6	36.5	43.4	530	631
1.468	46.2	93.6	37.5	44.6	549	655
1.483	47.2	96.6	38.5	45.8	571	679
1.498	48.2	99.6	39.6	47.1	593	706
1.514	49.2	102.8	40.6	48.3	615	731
1.530	50.2	106.0	41.5	49.4	635	756
1.546	51.2	109.2	42.5	50.6	655	779
1.563	52.2	112.6	43.6	51.9	681	811
1.580	53.2	116.0	44.7	53.2	706	840
1.597	54.2	119.4	45.8	54.5	731	870
1.615	55.2	123.0	47.0	55.9	754	905
1.634	56.3	126.8	48.3	57.5	789	940

# XLI.—SODIUM CARBONATE SOLUTION AT 15°

LUNGE

Specific Gravity.	Degrees Baumé.	Per Cent $\text{Na}_2\text{CO}_3$ .	Per Cent $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ .	1 Liter contains Grams	
				$\text{Na}_2\text{CO}_3$ .	$\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ .
1.007	1.0	0.67	1.807	6.8	18.2
1.014	2.0	1.33	3.587	13.5	36.4
1.022	3.1	2.09	5.637	21.4	57.6
1.029	4.1	2.76	7.444	28.4	76.6
1.036	5.1	3.43	9.251	35.5	95.8
1.045	6.2	4.29	11.570	44.8	120.9
1.052	7.2	4.94	13.323	52.0	140.2
1.060	8.2	5.71	15.400	60.5	163.2
1.067	9.1	6.37	17.180	68.0	183.3
1.075	10.1	7.12	19.203	76.5	206.4
1.083	11.1	7.88	21.252	85.3	230.2
1.091	12.1	8.62	23.248	94.0	253.6
1.100	13.2	9.43	25.432	103.7	279.8
1.108	14.1	10.19	27.482	112.9	304.5
1.116	15.1	10.95	29.532	122.2	329.6
1.125	16.1	11.81	31.851	132.9	358.3
1.134	17.1	12.61	34.009	143.0	385.7
1.142	18.0	13.16	35.493	150.3	405.3
1.152	19.1	14.24	38.405	164.1	442.4

## XLII.—CONCENTRATED SODIUM CARBONATE SOLUTION AT 30°

LUNGE

Specific Gravity	Degrees Baumé.	Per Cent $\text{Na}_2\text{CO}_3$ .	Per Cent $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ .	1 Liter contains Grams	
				$\text{Na}_2\text{CO}_3$ .	$\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ .
1.142	18.0	13.79	37.21	157.5	425.0
1.152	19.1	14.64	39.51	168.7	455.2
1.162	20.2	15.49	41.79	180.0	485.7
1.171	21.2	16.27	43.89	190.5	514.0
1.180	22.1	17.04	45.97	201.1	542.6
1.190	23.1	17.90	48.31	214.0	577.5
1.200	24.2	18.76	50.62	225.1	607.4
1.210	25.2	19.61	52.91	237.3	640.3
1.220	26.1	20.47	55.29	249.7	673.8
1.231	27.2	21.42	57.80	263.7	711.5
1.241	28.2	22.29	60.15	276.6	746.3
1.252	29.2	23.25	62.73	291.1	785.4
1.263	30.2	24.18	65.24	305.4	824.1
1.274	31.2	25.11	67.76	319.9	863.2
1.285	32.2	26.04	70.28	334.6	902.8
1.297	33.2	27.06	73.02	351.0	947.1
1.308	34.1	27.97	75.48	365.9	987.4

## XLIII.—CORRECTION OF SPECIFIC GRAVITY OF SODIUM CARBONATE FOR $\pm 1^\circ \text{C}$ .

LUNGE

For Temperatures from					For Specific Gravity	
$0^\circ$ to $30^\circ$ .	$30^\circ$ to $40^\circ$ .	$40^\circ$ to $50^\circ$ .	$50^\circ$ to $70^\circ$ .	$70^\circ$ to $100^\circ$ .	From	To
0.0002	0.0004	0.0004	0.0005	0.0005	1.010	1.050
0.0003	0.0004	0.0004	0.0006	0.0005	1.060	1.070
0.0004	0.0004	0.0004	0.0006	0.0006	1.080	1.110
0.0004	0.0004	0.0005	0.0006	0.0006	1.120	1.170
0.0004	0.0004	0.0006	0.0007	0.0007	1.180	1.200
0.0005	0.0004	0.0005	0.0007	0.0007	1.210	1.240
	0.0005	0.0005	0.0007	0.0007	1.241	1.252
	0.0005	0.0005	0.0006	0.0008	1.263	1.285

At 15°  
At 30°

# XLIV. — POTASSIUM CARBONATE SOLUTION AT 15°

CALCULATED FROM GERLACH

Specific Gravity.	Baumé.	Twaddell.	Per Cent $K_2CO_3$ .	1 Liter contains Grams $K_2CO_3$ .	Specific Gravity.	Baumé.	Twaddell.	Per Cent $K_2CO_3$ .	1 Liter contains Grams $K_2CO_3$ .
1.00914	1.3	1.8	1	10.1	1.27893	31.6	55.8	28	358.1
1.01829	2.6	3.6	2	20.4	1.28999	32.6	58.0	29	374.1
1.02743	3.9	5.4	3	30.8	1.30105	33.6	60.2	30	390.3
1.03658	5.1	7.2	4	41.4	1.31261	34.5	62.5	31	406.9
1.04572	6.3	9.2	5	52.3	1.32417	35.5	64.8	32	423.7
1.05513	7.6	11.0	6	63.3	1.33573	36.4	67.1	33	440.8
1.06454	8.8	12.9	7	74.5	1.34729	37.4	69.5	34	458.1
1.07396	10.0	14.8	8	85.9	1.35885	38.3	71.8	35	475.6
1.08337	11.2	16.6	9	97.5	1.37082	39.2	74.2	36	493.5
1.09278	12.3	18.6	10	109.3	1.38279	40.1	76.6	37	511.6
1.10258	13.5	20.5	11	121.3	1.39476	41.0	79.0	38	530.0
1.11238	14.6	22.4	12	133.5	1.40673	41.9	81.4	39	548.6
1.12219	15.8	24.4	13	145.9	1.41870	42.8	83.7	40	567.5
1.13199	16.9	26.4	14	158.5	1.43104	43.7	86.2	41	586.7
1.14179	18.0	28.3	15	171.3	1.44338	44.5	88.7	42	606.2
1.15200	19.1	30.4	16	184.3	1.45573	45.4	91.1	43	626.0
1.16222	20.2	32.4	17	197.5	1.46807	46.2	93.6	44	646.0
1.17243	21.3	34.5	18	211.0	1.48041	47.1	96.0	45	666.2
1.18265	22.4	36.5	19	224.7	1.49314	47.9	98.6	46	686.8
1.19286	23.4	38.6	20	238.6	1.50588	48.7	101.2	47	707.7
1.20344	24.5	40.7	21	252.7	1.51861	49.5	103.7	48	728.9
1.21402	25.6	42.8	22	267.1	1.53135	50.3	106.3	49	750.4
1.22459	26.6	44.9	23	281.7	1.54408	51.1	108.8	50	772.1
1.23517	27.6	47.0	24	296.5	1.55728	51.9	111.5	51	794.2
1.24575	28.6	49.1	25	311.5	1.57048	52.7	114.1	52	816.7
1.25681	29.6	51.4	26	326.8	1.57079	52.7	114.2	52.024	817.2
1.26787	30.6	53.6	27	342.3					

# XLV. — SPECIFIC GRAVITY AND PERCENTAGE OF ALCOHOL BY VOLUME

SQUIBB

Per Cent Alcohol by Volume.	Specific Gravity at 15.56° C.	Per Cent Alcohol by Volume.	Specific Gravity at 15.56° C.	Per Cent Alcohol by Volume.	Specific Gravity at 15.56° C.	Per Cent Alcohol by Volume.	Specific Gravity at 15.56° C.
1	0.9985	26	0.9698	51	0.9323	76	0.8745
2	.9970	27	.9691	52	.9303	77	.8721
3	.9956	28	.9678	53	.9283	78	.8696
4	.9942	29	.9665	54	.9262	79	.8664
5	.9930	30	.9652	55	.9242	80	.8639
6	.9914	31	.9643	56	.9221	81	.8611
7	.9898	32	.9631	57	.9200	82	.8581
8	.9890	33	.9618	58	.9178	83	.8557
9	.9878	34	.9609	59	.9160	84	.8526
10	.9869	35	.9593	60	.9135	85	.8496
11	.9855	36	.9578	61	.9113	86	.8466
12	.9841	37	.9565	62	.9090	87	.8434
13	.9828	38	.9550	63	.9069	88	.8408
14	.9821	39	.9535	64	.9047	89	.8373
15	.9815	40	.9519	65	.9025	90	.8340
16	.9802	41	.9503	66	.9001	91	.8305
17	.9789	42	.9490	67	.8973	92	.8272
18	.9778	43	.9470	68	.8949	93	.8237
19	.9766	44	.9452	69	.8925	94	.8199
20	.9760	45	.9434	70	.8900	95	.8164
21	.9753	46	.9416	71	.8875	96	.8125
22	.9741	47	.9396	72	.8850	97	.8084
23	.9728	48	.9381	73	.8825	98	.8041
24	.9716	49	.9362	74	.8799	99	.7995
25	.9709	50	.9343	75	.8769	100	.7946

The tables giving the percentage of alcohol by weight and by volume do not agree with each other. The density of absolute alcohol given by Fownes is .7938 at 15.6° C. (60° F.) compared with water at the same temperature. Under the same conditions Tralles finds a density of .7946. Squibb has shown that the density of absolute alcohol must be at least as low as .7935. This is .003 lower than the density found by Fownes and corresponds to 0.1 per cent of alcohol. The table given by Squibb is based on the values given by Fownes for percentage by weight and those given by Tralles for percentage by volume.

To reduce sp. gr. at  $\frac{15.6^\circ}{15.6^\circ}$  to  $\frac{15.6^\circ}{4^\circ}$  multiply by .99908 or for

sp. gr. 1.000 to .935 subtract .0009

“ .934 to .825 “ .0008

“ .824 “ .0007

# XLVI.—PERCENTAGE OF ALCOHOL BY VOLUME AND BY WEIGHT \*

GILPIN, DRINKWATER, AND SQUIBB

Specific Gravity at 60° F.	Alcohol			Specific Gravity at 60° F.	Alcohol		
	per cent by volume	per cent by weight	Grams per 100 c.c.		per cent by volume	per cent by weight	Grams per 100 c.c.
1.00000..	0.00	00.0	0.00	.99473..	3.60	2.88	2.86
0.99984..	0.10	0.08	0.08	.99459..	3.70	2.96	2.94
.99968..	0.20	0.16	0.16	.99445..	3.80	3.04	3.02
.99953..	0.30	0.24	0.24	.99431..	3.90	3.12	3.10
.99937..	0.40	0.32	0.32	.99417..	4.00	3.20	3.18
.99923..	0.50	0.40	0.40	.99403..	4.10	3.28	3.26
.99907..	0.60	0.48	0.48	.99390..	4.20	3.36	3.34
.99892..	0.70	0.56	0.56	.99376..	4.30	3.44	3.42
.99877..	0.80	0.64	0.64	.99363..	4.40	3.52	3.50
.99861..	0.90	0.71	0.71	.99349..	4.50	3.60	3.58
.99849..	1.00	0.79	0.79	.99335..	4.60	3.68	3.66
.99834..	1.10	0.87	0.87	.99322..	4.70	3.76	3.74
.99819..	1.20	0.95	0.95	.99308..	4.80	3.84	3.81
.99805..	1.30	1.03	1.03	.99295..	4.90	3.92	3.89
.99790..	1.40	1.11	1.11	.99281..	5.00	4.00	3.97
.99775..	1.50	1.19	1.19	.99268..	5.10	4.08	4.05
.99760..	1.60	1.27	1.27	.99255..	5.20	4.16	4.13
.99745..	1.70	1.35	1.35	.99241..	5.30	4.24	4.21
.99731..	1.80	1.43	1.43	.99228..	5.40	4.32	4.29
.99716..	1.90	1.51	1.51	.99215..	5.50	4.40	4.37
.99701..	2.00	1.59	1.59	.99202..	5.60	4.48	4.44
.99687..	2.10	1.67	1.66	.99189..	5.70	4.56	4.52
.99672..	2.20	1.75	1.74	.99175..	5.80	4.64	4.60
.99658..	2.30	1.83	1.82	.99162..	5.90	4.72	4.68
.99643..	2.40	1.91	1.90	.99149..	6.00	4.80	4.76
.99629..	2.50	1.99	1.98	.99136..	6.10	4.88	4.84
.99615..	2.60	2.07	2.06	.99123..	6.20	4.96	4.92
.99600..	2.70	2.15	2.14	.99111..	6.30	5.05	5.00
.99586..	2.80	2.23	2.22	.99098..	6.40	5.13	5.08
.99571..	2.90	2.31	2.30	.99085..	6.50	5.21	5.16
.99557..	3.00	2.39	2.38	.99072..	6.60	5.29	5.24
.99543..	3.10	2.47	2.46	.99059..	6.70	5.37	5.32
.99529..	3.20	2.55	2.54	.99047..	6.80	5.45	5.40
.99515..	3.30	2.64	2.62	.99034..	6.90	5.53	5.48
.99501..	3.40	2.72	2.70	.99021..	7.00	5.61	5.56
.99487..	3.50	2.80	2.78	.99009..	7.10	5.69	5.64

\* Bulletin No. 65, U.S. Department of Agriculture.



Specific Gravity at 60° F.	Alcohol			Specific Gravity at 60° F.	Alcohol		
	per cent by volume	per cent by weight	Grams per 100 c.c.		per cent by volume	per cent by weight	Grams per 100 c.c.
.98996..	7.20	5.77	5.72	.98513..	11.30	9.11	8.97
.98984..	7.30	5.86	5.80	.98502..	11.40	9.19	9.05
.98971..	7.40	5.94	5.88	.98491..	11.50	9.27	9.13
.98959..	7.50	6.02	5.96	.98479..	11.60	9.35	9.21
.98947..	7.60	6.10	6.04	.98468..	11.70	9.43	9.29
.98934..	7.70	6.18	6.11	.98457..	11.80	9.51	9.36
.98922..	7.80	6.26	6.19	.98446..	11.90	9.59	9.44
.98909..	7.90	6.34	6.27	.98435..	12.00	9.67	9.52
.98897..	8.00	6.42	6.35	.98424..	12.10	9.75	9.60
.98885..	8.10	6.50	6.43	.98413..	12.20	9.83	9.68
.98873..	8.20	6.58	6.51	.98402..	12.30	9.92	9.76
.98861..	8.30	6.67	6.59	.98391..	12.40	10.00	9.84
.98849..	8.40	6.75	6.67	.98381..	12.50	10.08	9.92
.98837..	8.50	6.83	6.75	.98370..	12.60	10.16	10.00
.98825..	8.60	6.91	6.83	.98359..	12.70	10.24	10.07
.98813..	8.70	6.99	6.91	.98348..	12.80	10.33	10.15
.98801..	8.80	7.07	6.99	.98337..	12.90	10.41	10.23
.98789..	8.90	7.15	7.07	.98326..	13.00	10.49	10.31
.98777..	9.00	7.23	7.14	.98315..	13.10	10.57	10.39
.98765..	9.10	7.31	7.22	.98305..	13.20	10.65	10.47
.98754..	9.20	7.39	7.30	.98294..	13.30	10.74	10.55
.98742..	9.30	7.48	7.38	.98283..	13.40	10.82	10.63
.98730..	9.40	7.56	7.46	.98273..	13.50	10.90	10.71
.98719..	9.50	7.64	7.54	.98262..	13.60	10.98	10.79
.98707..	9.60	7.72	7.62	.98251..	13.70	11.06	10.87
.98695..	9.70	7.80	7.70	.98240..	13.80	11.15	10.95
.98683..	9.80	7.88	7.78	.98230..	13.90	11.23	11.03
.98672..	9.90	7.96	7.85	.98219..	14.00	11.31	11.11
.98660..	10.00	8.04	7.93	.98209..	14.10	11.39	11.19
.98649..	10.10	8.12	8.01	.98198..	14.20	11.47	11.27
.98637..	10.20	8.20	8.09	.98188..	14.30	11.56	11.35
.98626..	10.30	8.29	8.17	.98177..	14.40	11.64	11.43
.98614..	10.40	8.37	8.25	.98167..	14.50	11.72	11.51
.98603..	10.50	8.45	8.33	.98156..	14.60	11.80	11.59
.98592..	10.60	8.53	8.41	.98146..	14.70	11.88	11.67
.98580..	10.70	8.61	8.49	.98135..	14.80	11.97	11.75
.98569..	10.80	8.70	8.57	.98125..	14.90	12.05	11.82
.98557..	10.90	8.78	8.65	.98114..	15.00	12.13	11.90
.98546..	11.00	8.86	8.73	.98104..	15.10	12.21	11.98
.98535..	11.10	8.94	8.81	.98093..	15.20	12.29	12.06
.98524..	11.20	9.02	8.89	.98083..	15.30	12.38	12.14

Specific Gravity at 60°F.	Alcohol			Specific Gravity at 60°F.	Alcohol		
	per cent by volume	per cent by weight	Grams per 100 c.c.		per cent by volume	per cent by weight	Grams per 100 c.c.
.98073..	15.40	12.46	12.22	.97658..	19.50	15.84	15.47
.98063..	15.50	12.54	12.30	.97648..	19.60	15.93	15.55
.98052..	15.60	12.62	12.37	.97638..	19.70	16.01	15.63
.98042..	15.70	12.70	12.45	.97628..	19.80	16.09	15.71
.98032..	15.80	12.79	12.53	.97618..	19.90	16.18	15.79
.98021..	15.90	12.87	12.61	.97608..	20.00	16.26	15.87
.98011..	16.00	12.95	12.69	.97598..	20.10	16.34	15.95
.98001..	16.10	13.03	12.77	.97588..	20.20	16.42	16.03
.97991..	16.20	13.12	12.85	.97578..	20.30	16.51	16.10
.97980..	16.30	13.20	12.93	.97568..	20.40	16.59	16.18
.97970..	16.40	13.29	13.01	.97558..	20.50	16.67	16.26
.97960..	16.50	13.37	13.09	.97547..	20.60	16.75	16.34
.97950..	16.60	13.45	13.17	.97537..	20.70	16.84	16.42
.97940..	16.70	13.53	13.25	.97527..	20.80	16.92	16.50
.97929..	16.80	13.62	13.33	.97517..	20.90	17.01	16.58
.97919..	16.90	13.70	13.41	.97507..	21.00	17.09	16.66
.97909..	17.00	13.78	13.49	.97497..	21.10	17.17	16.74
.97899..	17.10	13.86	13.57	.97487..	21.20	17.26	16.82
.97889..	17.20	13.94	13.65	.97477..	21.30	17.34	16.90
.97879..	17.30	14.03	13.73	.97467..	21.40	17.43	16.98
.97869..	17.40	14.11	13.81	.97457..	21.50	17.51	17.06
.97859..	17.50	14.19	13.89	.97446..	21.60	17.59	17.14
.97848..	17.60	14.27	13.96	.97436..	21.70	17.67	17.22
.97838..	17.70	14.35	14.04	.97426..	21.80	17.76	17.30
.97828..	17.80	14.44	14.12	.97416..	21.90	17.84	17.38
.97818..	17.90	14.52	14.20	.97406..	22.00	17.92	17.46
.97808..	18.00	14.60	14.28	.97396..	22.10	18.00	17.54
.97798..	18.10	14.68	14.36	.97386..	22.20	18.09	17.62
.97788..	18.20	14.77	14.44	.97375..	22.30	18.17	17.70
.97778..	18.30	14.85	14.52	.97365..	22.40	18.26	17.78
.97768..	18.40	14.94	14.60	.97355..	22.50	18.34	17.86
.97758..	18.50	15.02	14.68	.97345..	22.60	18.42	17.94
.97748..	18.60	15.10	14.76	.97335..	22.70	18.51	18.02
.97738..	18.70	15.18	14.84	.97324..	22.80	18.59	18.10
.97728..	18.80	15.27	14.92	.97314..	22.90	18.68	18.18
.97718..	18.90	15.38	15.00	.97304..	23.00	18.76	18.26
.97708..	19.00	15.43	15.08	.97294..	23.10	18.84	18.33
.97698..	19.10	15.51	15.15	.97283..	23.20	18.92	18.41
.97688..	19.20	15.59	15.23	.97273..	23.30	19.01	18.49
.97678..	19.30	15.68	15.31	.97263..	23.40	19.09	18.57
.97668..	19.40	15.76	15.39	.97253..	23.50	19.17	18.65

Specific Gravity at 60° 60°F.	Alcohol			Specific Gravity at 60° 60°F.	Alcohol		
	per cent by volume	per cent by weight	Grams per 100 c.c.		per cent by volume	per cent by weight	Grams per 100 c.c.
.97242..	23.60	19.25	18.73	.96805..	27.70	22.71	21.98
.97232..	23.70	19.34	18.81	.96794..	27.80	22.79	22.06
.97222..	23.80	19.42	18.88	.96783..	27.90	22.88	22.14
.97211..	23.90	19.51	18.96	.96772..	28.00	22.96	22.22
.97201..	24.00	19.59	19.04	.96761..	28.10	23.04	22.30
.97191..	24.10	19.67	19.12	.96749..	28.20	23.13	22.38
.97180..	24.20	19.76	19.20	.96738..	28.30	23.21	22.45
.97170..	24.30	19.84	19.28	.96726..	28.40	23.30	22.53
.97159..	24.40	19.93	19.36	.96715..	28.50	23.38	22.61
.97149..	24.50	20.01	19.44	.96704..	28.60	23.47	22.69
.97139..	24.60	20.09	19.52	.96692..	28.70	23.55	22.77
.97128..	24.70	20.18	19.60	.96681..	28.80	23.64	22.85
.97118..	24.80	20.26	19.68	.96669..	28.90	23.72	22.93
.97107..	24.90	20.35	19.76	.96658..	29.00	23.81	23.01
.97097..	25.00	20.43	19.84	.96646..	29.10	23.89	23.09
.97086..	25.10	20.51	19.92	.96635..	29.20	23.98	23.17
.97076..	25.20	20.60	20.00	.96623..	29.30	24.06	23.25
.97065..	25.30	20.68	20.08	.96611..	29.40	24.15	23.33
.97055..	25.40	20.77	20.16	.96600..	29.50	24.23	23.41
.97044..	25.50	20.85	20.24	.96587..	29.60	24.32	23.49
.97033..	25.60	20.93	20.32	.96576..	29.70	24.40	23.57
.97023..	25.70	21.02	20.40	.96564..	29.80	24.49	23.65
.97012..	25.80	21.10	20.47	.96553..	29.90	24.57	23.73
.97001..	25.90	21.19	20.55	.96541..	30.00	24.66	23.81
.96991..	26.00	21.27	20.63	.96529..	30.10	24.74	23.89
.96980..	26.10	21.35	20.71	.96517..	30.20	24.83	23.97
.96969..	26.20	21.44	20.79	.96505..	30.30	24.91	24.04
.96959..	26.30	21.52	20.87	.96493..	30.40	25.00	24.12
.96949..	26.40	21.61	20.95	.96481..	30.50	25.08	24.20
.96937..	26.50	21.69	21.03	.96469..	30.60	25.17	24.28
.96926..	26.60	21.77	21.11	.96457..	30.70	25.25	24.36
.96915..	26.70	21.86	21.19	.96445..	30.80	25.34	24.44
.96905..	26.80	21.94	21.27	.96433..	30.90	25.42	24.52
.96894..	26.90	22.03	21.35	.96421..	31.00	25.51	24.60
.96883..	27.00	22.11	21.43	.96409..	31.10	25.60	24.68
.96872..	27.10	22.20	21.51	.96396..	31.20	25.68	24.76
.96861..	27.20	22.28	21.59	.96384..	31.30	25.77	24.84
.96850..	27.30	22.37	21.67	.96372..	31.40	25.85	24.92
.96839..	27.40	22.45	21.75	.96360..	31.50	25.94	25.00
.96828..	27.50	22.54	21.83	.96347..	31.60	26.03	25.08
.96816..	27.60	22.62	21.90	.96335..	31.70	26.11	25.16

Specific Gravity at 60° F.	Alcohol			Specific Gravity at 60° F.	Alcohol		
	per cent by volume	per cent by weight	Grams per 100 c.c.		per cent by volume	per cent by weight	Grams per 100 c.c.
.96323..	31.80	26.20	25.24	.95787..	35.90	29.74	28.49
.96310..	31.90	26.28	25.32	.95773..	36.00	29.83	28.57
.96298..	32.00	26.37	25.40	.95759..	36.10	29.92	28.65
.96285..	32.10	26.46	25.48	.95745..	36.20	30.00	28.73
.96273..	32.20	26.54	25.56	.95731..	36.30	30.09	28.81
.96260..	32.30	26.63	25.64	.95717..	36.40	30.17	28.88
.96248..	32.40	26.71	25.71	.95703..	36.50	30.26	28.96
.96235..	32.50	26.80	25.79	.95688..	36.60	30.35	29.04
.96222..	32.60	26.89	25.87	.95674..	36.70	30.44	29.12
.96210..	32.70	26.97	25.95	.95660..	36.80	30.52	29.20
.96197..	32.80	27.06	26.03	.95646..	36.90	30.61	29.29
.96185..	32.90	27.14	26.11	.95632..	37.00	30.70	29.36
.96172..	33.00	27.23	26.19	.95618..	37.10	30.79	29.44
.96159..	33.10	27.32	26.27	.95603..	37.20	30.88	29.52
.96146..	33.20	27.40	26.35	.95589..	37.30	30.96	29.60
.96133..	33.30	27.49	26.43	.95574..	37.40	31.05	29.68
.96120..	33.40	27.57	26.51	.95560..	37.50	31.14	29.76
.96108..	33.50	27.66	26.59	.95545..	37.60	31.23	29.84
.96095..	33.60	27.75	26.67	.95531..	37.70	31.32	29.92
.96082..	33.70	27.83	26.75	.95516..	37.80	31.40	30.00
.96069..	33.80	27.92	26.82	.95502..	37.90	31.49	30.08
.96056..	33.90	28.00	26.90	.95487..	38.00	31.58	30.16
.96043..	34.00	28.09	26.98	.95472..	38.10	31.67	30.24
.96030..	34.10	28.18	27.06	.95457..	38.20	31.76	30.32
.96016..	34.20	28.26	27.14	.95442..	38.30	31.85	30.40
.96003..	34.30	28.35	27.22	.95427..	38.40	31.94	30.48
.95990..	34.40	28.43	27.30	.95413..	38.50	32.03	30.56
.95977..	34.50	28.52	27.38	.95398..	38.60	32.12	30.64
.95963..	34.60	28.61	27.46	.95383..	30.70	32.20	30.72
.95950..	34.70	28.70	27.54	.95368..	30.80	32.29	30.79
.95937..	34.80	28.78	27.62	.95353..	30.90	32.37	30.87
.95923..	34.90	28.87	27.70	.95338..	39.00	32.46	30.95
.95910..	35.00	28.96	27.78	.95323..	39.10	32.55	31.03
.95896..	35.10	29.05	27.86	.95307..	39.20	32.64	31.11
.95883..	35.20	29.13	27.94	.95292..	39.30	32.72	31.18
.95869..	35.30	29.22	28.02	.95277..	39.40	32.81	31.26
.95855..	35.40	29.30	28.09	.95262..	39.50	32.90	31.34
.95842..	35.50	29.38	28.17	.95246..	39.60	32.99	31.42
.95828..	35.60	29.48	28.25	.95231..	39.70	33.08	31.50
.95814..	35.70	29.57	28.33	.95216..	39.80	33.17	31.58
.95800..	35.80	29.65	28.41	.95200..	39.90	33.27	31.66

Specific Gravity at 60° F.	Alcohol			Specific Gravity at 60° F.	Alcohol		
	per cent by volume	per cent by weight	Grams per 100 c.c.		per cent by volume	per cent by weight	Grams per 100 c.c.
.95185..	40.00	33.35	31.74	.94519..	44.10	37.02	34.99
.95169..	40.10	33.44	31.82	.94502..	44.20	37.11	35.07
.95154..	40.20	33.53	31.90	.94484..	44.30	37.21	35.15
.95138..	40.30	33.61	31.98	.94467..	44.40	37.30	35.23
.95122..	40.40	33.70	32.06	.94450..	44.50	37.39	35.31
.95107..	40.50	33.79	32.14	.94433..	44.60	37.48	35.39
.95091..	40.60	33.88	32.22	.94416..	44.70	37.57	35.47
.95075..	40.70	33.97	32.30	.94398..	44.80	37.66	35.55
.95059..	40.80	34.06	32.38	.94381..	44.90	37.76	35.63
.95044..	40.90	34.15	32.46	.94364..	45.00	37.84	35.71
.95028..	41.00	34.24	32.54	.94346..	45.10	37.93	35.79
.95012..	41.10	34.33	32.62	.94329..	45.20	38.02	35.87
.94996..	41.20	34.42	32.70	.94311..	45.30	38.12	35.95
.94980..	41.30	34.50	32.78	.94294..	45.40	38.21	36.03
.94964..	41.40	34.59	32.86	.94276..	45.50	38.30	36.11
.94948..	41.50	34.68	32.93	.94258..	45.60	38.39	36.19
.94932..	41.60	34.77	33.01	.94241..	45.70	38.48	36.26
.94916..	41.70	34.86	33.09	.94223..	45.80	38.57	36.34
.94900..	41.80	34.95	33.17	.94206..	45.90	38.66	36.42
.94884..	41.90	35.04	33.25	.94188..	46.00	38.75	36.50
.94868..	42.00	35.13	33.33	.94170..	46.10	38.84	36.58
.94852..	42.10	35.22	33.41	.94152..	46.20	38.93	36.66
.94835..	42.20	35.31	33.49	.94134..	46.30	39.03	36.74
.94810..	42.30	35.40	33.57	.94116..	46.40	39.12	36.82
.94802..	42.40	35.49	33.65	.94098..	46.50	39.21	36.90
.94786..	42.50	35.58	33.73	.94080..	46.60	39.30	36.98
.94770..	42.60	35.67	33.81	.94062..	46.70	39.39	37.06
.94753..	42.70	35.76	33.89	.94044..	46.80	39.49	37.13
.94737..	42.80	35.85	33.97	.94026..	46.90	39.58	37.21
.94720..	42.90	35.94	34.04	.94008..	47.00	39.67	37.29
.94704..	43.00	36.03	34.12	.93990..	47.10	39.76	37.37
.94687..	43.10	36.12	34.20	.93971..	47.20	39.85	37.45
.94670..	43.20	36.21	34.28	.93953..	47.30	39.95	37.53
.94654..	43.30	36.30	34.36	.93934..	47.40	40.04	37.61
.94637..	43.40	36.39	34.44	.93916..	47.50	40.13	37.69
.94620..	43.50	36.48	34.52	.93898..	47.60	40.22	37.77
.94603..	43.60	36.57	34.60	.93879..	47.70	40.32	37.85
.94586..	43.70	36.66	34.68	.93861..	47.80	40.41	37.93
.94570..	43.80	36.75	34.76	.93842..	47.90	40.51	38.01
.94553..	43.90	36.84	34.84	.93824..	48.00	40.60	38.09
.94536..	44.00	36.93	34.91	.93805..	48.10	40.69	38.17

Specific Gravity 60° 60°F.	Alcohol			Specific Gravity at 60°F. 60°	Alcohol		
	per cent by volume	per cent by volume	per cent by weight		Grams per 100 c.c.	per cent by weight	Grams per 100 c.c.
.93786..	48.20	40.78	38.25	.93617..	49.10	41.61	38.96
.93768..	48.30	40.88	38.33	.93598..	49.20	41.71	39.04
.93749..	48.40	40.97	38.41	.93578..	49.30	41.80	39.12
.93730..	48.50	41.06	38.49	.93559..	49.40	41.90	39.20
.93711..	48.60	41.15	38.57	.93540..	49.50	41.99	39.28
.93692..	48.70	41.24	38.65	.93521..	49.60	42.08	39.36
.93679..	48.80	41.34	38.72	.93502..	49.70	42.18	39.44
.93655..	48.90	41.43	38.80	.93482..	49.80	42.27	39.52
.93636..	49.00	41.52	38.88	.93463..	49.90	42.37	39.60

XLVII. — METHYL ALCOHOL AT  $\frac{15.56^{\circ}}{4^{\circ}}$

DITTMAR AND FAWSITT

Specific Gravity.	Per Cent by Weight.	Specific Gravity.	Per Cent by Weight.	Specific Gravity.	Per Cent by Weight.	Specific Gravity.	Per Cent by Weight.
0.99729	1	0.94055	38	0.89133	63	0.84521	82
0.99554	2	0.93697	40	0.88905	64	0.84262	83
0.99214	4	0.93335	42	0.88676	65	0.84001	84
0.98893	6	0.92975	44	0.88443	66	0.83738	85
0.98569	8	0.92610	46	0.88208	67	0.83473	86
0.98262	10	0.92237	48	0.87970	68	0.83207	87
0.97962	12	0.91855	50	0.87714	69	0.82938	88
0.97668	14	0.91661	51	0.87487	70	0.82668	89
0.97379	16	0.91465	52	0.87262	71	0.83396	90
0.97039	18	0.91267	53	0.87021	72	0.82123	91
0.96808	20	0.91066	54	0.86779	73	0.81849	92
0.96524	22	0.90863	55	0.86535	74	0.81572	93
0.96238	24	0.90657	56	0.86290	75	0.81293	94
0.95947	26	0.90450	57	0.86042	76	0.81013	95
0.95655	28	0.90239	58	0.85793	77	0.80731	96
0.95355	30	0.90026	59	0.85542	78	0.80448	97
0.95053	32	0.89798	60	0.85290	79	0.80164	98
0.94732	34	0.89580	61	0.85035	80	0.79876	99
0.94399	36	0.89358	62	0.84779	81	0.79589	100

# XLVIII.—SPECIFIC GRAVITY AQUEOUS SOLUTIONS CHEMICALLY PURE GLYCERENE

Per Cent Glycerene.	Gerlach.		Skalweit.	Per Cent Glycerene.	Gerlach.		Skalweit.
	Sp. Gr. at 15° C. Water at 15° = 1.	Sp. Gr. at 20° C. Water at 20° = 1.	Sp. Gr. at 15° C.		Sp. Gr. at 15° C. Water at 15° = 1.	Sp. Gr. at 20° C. Water at 20° = 1.	Sp. Gr. at 15°.
0	1.0000	1.0000	1.0000	36			1.0912
1			1.0024	37			1.0939
2			1.0048	38			1.0966
3			1.0072	39			1.0993
4			1.0096	40	1.1020	1.1010	1.1020
5			1.0120	41			1.1047
6			1.0144	42			1.1074
7			1.0168	43			1.1101
8			1.0192	44			1.1128
9			1.0216	45	1.1155	1.1145	1.1155
10	1.0245	1.0235	1.0240	46			1.1182
11			1.0265	47			1.1209
12			1.0290	48			1.1236
13			1.0315	49			1.1263
14			1.0340	50	1.1294	1.1280	1.1290
15			1.0365	51			1.1318
16			1.0390	52			1.1346
17			1.0415	53			1.1374
18			1.0440	54			1.1402
19			1.0465	55	1.1430	1.1415	1.1430
20	1.0490	1.0480	1.0490	56			1.1458
21			1.0516	57			1.1486
22			1.0542	58			1.1514
23			1.0568	59			1.1542
24			1.0594	60	1.1570	1.1550	1.1570
25	1.0620	1.0610	1.0620	61			1.1599
26			1.0646	62			1.1628
27			1.0672	63			1.1657
28			1.0698	64			1.1686
29			1.0724	65	1.1711	1.1685	1.1715
30	1.0750	1.0740	1.0750	66			1.1743
31			1.0777	67			1.1771
32			1.0804	68			1.1799
33			1.0831	69			1.1827
34			1.0858	70	1.1850	1.1820	1.1855
35	1.0885	1.0875	1.0885	71	1.1878	1.1847	1.1882

Per Cent Glycerene.	Gerlach.		Skalweit.	Per Cent Glycerene.	Gerlach.		Skalweit.
	Sp. Gr. at 15° C. Water at 15° = 1.	Sp. Gr. at 20° C. Water at 20° = 1.	Sp. Gr. at 15°.		Sp. Gr. at 15° C. Water at 15° = 1.	Sp. Gr. at 20° C. Water at 20° = 1.	Sp. Gr. at 15°.
72	1.1906	1.1874	1.1909	87	1.2319	1.2279	1.2314
73	1.1934	1.1901	1.1936	88	1.2346	1.2306	1.2341
74	1.1962	1.1928	1.1963	89	1.2373	1.2333	1.2368
75	1.1990	1.1955	1.1990	90	1.2400	1.2360	1.2395
76	1.2018	1.1982	1.2017	91	1.2425	1.2386	1.2421
77	1.2046	1.2009	1.2044	92	1.2451	1.2412	1.2447
78	1.2074	1.2036	1.2071	93	1.2476	1.2438	1.2473
79	1.2102	1.2063	1.2098	94	1.2501	1.2464	1.2499
80	1.2130	1.2090	1.2125	95	1.2526	1.2490	1.2525
81	1.2157	1.2117	1.2152	96	1.2552	1.2516	1.2550
82	1.2184	1.2144	1.2179	97	1.2577	1.2542	1.2575
83	1.2211	1.2171	1.2206	98	1.2602	1.2568	1.2600
84	1.2238	1.2198	1.2233	99	1.2628	1.2594	1.2625
85	1.2265	1.2225	1.2260	100	1.2653	1.2620	1.2650
86	1.2292	1.2252	1.2287				

## XLIX. — AMMONIUM SULPHATE SOLUTION AT 19°

SCHIFF

Specific Gravity.	Per Cent (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .	Specific Gravity.	Per Cent (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .	Specific Gravity.	Per Cent (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .	Specific Gravity.	Per Cent (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .	Specific Gravity.	Per Cent (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> .
1.0057	1	1.0632	11	1.1207	21	1.1780	31	1.2343	41
1.0115	2	1.0690	12	1.1265	22	1.1836	32	1.2402	42
1.0172	3	1.0747	13	1.1323	23	1.1892	33	1.2462	43
1.0230	4	1.0805	14	1.1381	24	1.1948	34	1.2522	44
1.0287	5	1.0862	15	1.1439	25	1.2004	35	1.2583	45
1.0345	6	1.0920	16	1.1496	26	1.2060	36	1.2644	46
1.0403	7	1.0977	17	1.1554	27	1.2116	37	1.2705	47
1.0460	8	1.1035	18	1.1612	28	1.2172	38	1.2766	48
1.0518	9	1.1092	19	1.1670	29	1.2228	39	1.2828	49
1.0575	10	1.1149	20	1.1724	30	1.2284	40	1.2890	50



# L. — AMMONIUM CHLORIDE SOLUTION AT 15°

GERLACH

Specific Gravity.	Per Cent $\text{NH}_4\text{Cl}$ .	Specific Gravity.	Per Cent $\text{NH}_4\text{Cl}$ .	Specific Gravity.	Per Cent $\text{NH}_4\text{Cl}$ .	Specific Gravity.	Per Cent $\text{NH}_4\text{Cl}$ .	Specific Gravity.	Per Cent $\text{NH}_4\text{Cl}$ .
1.00316	1	1.02180	7	1.03947	13	1.05648	19	1.07304	25
1.00632	2	1.02481	8	1.04325	14	1.05929	20	1.07575	26
1.00948	3	1.02781	9	1.04524	15	1.06204	21	1.07658	26.297
1.01264	4	1.03081	10	1.04805	16	1.06479	22		
1.01580	5	1.03370	11	1.05086	17	1.06754	23		
1.01880	6	1.03658	12	1.05367	18	1.07029	24		

# LI. — AVAILABLE CHLORINE IN BLEACHING POWDER SOLUTION AT 15°

LUNGE AND BACHOFFEN

Specific Gravity.	Grams Cl per l.	Specific Gravity.	Grams Cl per l.	Specific Gravity.	Grams Cl per l.	Specific Gravity.	Grams Cl per l.
1.0000	traces	1.0300	17.36	1.0650	39.10	1.1000	61.50
1.0025	1.40	1.0350	20.44	1.0700	42.31	1.1050	64.50
1.0050	2.71	1.0400	23.75	1.0750	45.70	1.1060	65.33
1.0100	5.58	1.0450	26.62	1.0800	49.96	1.1100	68.00
1.0150	8.48	1.0500	29.60	1.0850	52.27	1.1105	68.40
1.0200	11.41	1.0550	32.68	1.0900	55.18	1.1150	71.50
1.0250	14.47	1.0600	35.81	1.0950	58.40	1.1155	71.79

# LII. — CUPRIC CHLORIDE SOLUTION AT 17.5°

FRANZ

Specific Gravity.	Per Cent $\text{CuCl}_2$ .	Specific Gravity.	Per Cent $\text{CuCl}_2$ .	Specific Gravity.	Per Cent $\text{CuCl}_2$ .	Specific Gravity.	Per Cent $\text{CuCl}_2$ .
1.0182	2	1.1178	12	1.2501	22	1.3950	32
1.0364	4	1.1436	14	1.2779	24	1.4287	34
1.0548	6	1.1696	16	1.3058	26	1.4615	36
1.0734	8	1.1958	18	1.3338	28	1.4949	38
1.0920	10	1.2223	20	1.3618	30	1.5284	40

### LIII. — CUPRIC SULPHATE SOLUTION AT 18°

Specific Gravity.	Per Cent $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ .	Specific Gravity.	Per Cent $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ .	Specific Gravity.	Per Cent $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ .	Specific Gravity.	Per Cent $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ .
1.0063	1	1.0582	9	1.1135	17	1.1699	24
1.0126	2	1.0649	10	1.1208	18	1.1738	25
1.0190	3	1.0716	11	1.1281	19	1.1817	26
1.0254	4	1.0785	12	1.1354	20	1.1898	27
1.0319	5	1.0854	13	1.1427	21	1.1980	28
1.0384	6	1.0923	14	1.1501	22	1.2063	29
1.0450	7	1.0993	15	1.1585	23	1.2146	30
1.0516	8	1.1063	16				

### LIV. — FERRIC CHLORIDE SOLUTION AT 17.5°

FRANZ

Specific Gravity.	Per Cent $\text{Fe}_2\text{Cl}_6$ .	Specific Gravity.	Per Cent $\text{Fe}_2\text{Cl}_6$ .	Specific Gravity.	Per Cent $\text{Fe}_2\text{Cl}_6$ .	Specific Gravity.	Per Cent $\text{Fe}_2\text{Cl}_6$ .	Specific Gravity.	Per Cent $\text{Fe}_2\text{Cl}_6$ .
1.0146	2	1.1054	14	1.2155	26	1.4311	38	1.4867	50
1.0292	4	1.1215	16	1.2365	28	1.3622	40	1.5153	52
1.0439	6	1.1378	18	1.2568	30	1.3870	42	1.5439	54
1.0587	8	1.1542	20	1.2778	32	1.4118	44	1.5729	56
1.0734	10	1.1746	22	1.2988	34	1.4367	46	1.6023	58
1.0894	12	1.1950	24	1.3199	36	1.4617	48	1.6317	60

# LV.—FERROUS SULPHATE AT 15°

GERLACH

Specific Gravity.	Per Cent FeSO <sub>4</sub> .	Per Cent FeSO <sub>4</sub> . 7H <sub>2</sub> O.	Specific Gravity.	Per Cent FeSO <sub>4</sub> .	Per Cent FeSO <sub>4</sub> . 7H <sub>2</sub> O.	Specific Gravity.	Per Cent FeSO <sub>4</sub> .	Per Cent FeSO <sub>4</sub> . 7H <sub>2</sub> O.
1.005	0.565	1	1.0267	2.811	5	1.1430	15.834	25
1.011	1.130	2	1.0537	5.784	10	1.1738	19.622	30
1.016	1.694	3	1.0823	8.934	15	1.2063	23.672	35
1.021	2.258	4	1.1124	12.277	20	1.2391	27.995	40

# LVI.—FERRIC SULPHATE AT 18°

HAGER

GIVING PERCENTAGE OF METALLIC IRON

Specific Gravity.	Per Cent Fe <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .	Per Cent Fe.	Specific Gravity.	Per Cent Fe <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .	Per Cent Fe.	Specific Gravity.	Per Cent Fe <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> .	Per Cent Fe.
1.017	2	0.56	1.173	17	4.76	1.351	31	8.68
1.027	3	0.84	1.184	18	5.04	1.365	32	8.96
1.036	4	1.12	1.196	19	5.35	1.380	33	9.24
1.046	5	1.40	1.208	20	5.60	1.395	34	9.52
1.057	6	1.68	1.220	21	5.88	1.411	35	9.80
1.067	7	1.96	1.232	22	6.16	1.427	36	10.08
1.077	8	2.24	1.245	23	6.44	1.442	37	10.36
1.087	9	2.52	1.258	24	6.72	1.458	38	10.67
1.097	10	2.80	1.271	25	7.00	1.474	39	10.92
1.107	11	3.08	1.284	26	7.28	1.490	40	11.20
1.118	12	3.36	1.297	27	7.56	1.506	41	11.48
1.129	13	3.64	1.310	28	7.84	1.523	42	11.76
1.140	14	3.92	1.323	29	8.12	1.540	43	12.04
1.151	15	4.20	1.337	30	8.40	1.557	44	12.32
1.162	16	4.48						

# LVII. — POTASSIUM CHROMATE SOLUTION AT 19.5°

SCHIFF

Specific Gravity.	Per Cent $K_2Cr_2O_7$ .	Specific Gravity.	Per Cent $K_2Cr_2O_7$ .	Specific Gravity.	Per Cent $K_2Cr_2O_7$ .	Specific Gravity.	Per Cent $K_2Cr_2O_7$ .	Specific Gravity.	Per Cent $K_2Cr_2O_7$ .
1.0080	1	1.0750	9	1.1474	17	1.2274	25	1.3151	33
1.0161	2	1.0837	10	1.1570	18	1.2379	26	1.3268	34
1.0243	3	1.0925	11	1.1667	19	1.2485	27	1.3386	35
1.0325	4	1.1014	12	1.1765	20	1.2592	28	1.3505	36
1.0408	5	1.1104	13	1.1864	21	1.2700	29	1.3625	37
1.0492	6	1.1195	14	1.1964	22	1.2808	30	1.3746	38
1.0576	7	1.1287	15	1.2066	23	1.2921	31	1.3868	39
1.0663	8	1.1380	16	1.2169	24	1.3035	32	1.3991	40

# LVIII. — POTASSIUM DICHROMATE SOLUTION AT 19.5°

KREMERS AND GERLACH

Specific Gravity.	Per Cent $K_2Cr_2O_7$ .	Specific Gravity.	Per Cent $K_2Cr_2O_7$ .	Specific Gravity.	Per Cent $K_2Cr_2O_7$ .	Specific Gravity.	Per Cent $K_2Cr_2O_7$ .
1.007	1	1.037	5	1.065	9	1.095	13
1.015	2	1.043	6	1.073	10	1.102	14
1.022	3	1.050	7	1.080	11	1.110	15
1.030	4	1.056	8	1.087	12		

# LIX. — SODIUM CHLORIDE SOLUTION AT 15°

GERLACH

Specific Gravity.	Per Cent NaCl.	Specific Gravity.	Per Cent NaCl.	Specific Gravity.	Per Cent NaCl.	Specific Gravity.	Per Cent NaCl.
1.00725	1	1.05851	8	1.11146	15	1.16755	22
1.01450	2	1.06593	9	1.11938	16	1.17580	23
1.02174	3	1.07335	10	1.12730	17	1.18404	24
1.02899	4	1.08097	11	1.13523	18	1.19228	25
1.03624	5	1.08859	12	1.14315	19	1.20098	26
1.04366	6	1.09622	13	1.15107	20	1.20433	26.395
1.05109	7	1.10384	14	1.15931	21		

# LX. — SODIUM DICHROMATE SOLUTION

STANLEY

Specific Gravity.	Per Cent $\text{Na}_2\text{Cr}_2\text{O}_7$ .	Specific Gravity.	Per Cent $\text{Na}_2\text{Cr}_2\text{O}_7$ .	Specific Gravity.	Per Cent $\text{Na}_2\text{Cr}_2\text{O}_7$ .
1.007	1	1.141	20	1.280	40
1.035	5	1.171	25	1.313	45
1.071	10	1.208	30	1.343	50
1.105	15	1.245	35		

# LXI. — STANNIC CHLORIDE SOLUTION AT 15°

GERLACH

Specific Gravity.	Per Cent $\text{SnCl}_4 \cdot 5\text{H}_2\text{O}$ .	Specific Gravity.	Per Cent $\text{SnCl}_4 \cdot 5\text{H}_2\text{O}$ .	Specific Gravity.	Per Cent $\text{SnCl}_4 \cdot 5\text{H}_2\text{O}$ .	Specific Gravity.	Per Cent $\text{SnCl}_4 \cdot 5\text{H}_2\text{O}$ .	Specific Gravity.	Per Cent $\text{SnCl}_4 \cdot 5\text{H}_2\text{O}$ .
1.012	2	1.137	22	1.293	42	1.491	62	1.759	82
1.024	4	1.151	24	1.310	44	1.514	64	1.791	84
1.036	6	1.165	26	1.329	46	1.538	66	1.824	86
1.048	8	1.180	28	1.347	48	1.563	68	1.859	88
1.059	10	1.195	30	1.366	50	1.587	70	1.893	90
1.072	12	1.210	32	1.386	52	1.614	72	1.932	92
1.084	14	1.2268	34	1.406	54	1.641	74	1.969	94
1.097	16	1.242	36	1.426	56	1.669	76	1.988	96
1.110	18	1.259	38	1.447	58	1.698	78		
1.1236	20	1.2755	40	1.468	60	1.727	80		

# LXII. — STANNOUS CHLORIDE SOLUTION AT 15°

GERLACH

Specific Gravity.	Per Cent $\text{SnCl}_2 \cdot 2\text{H}_2\text{O}$ .	Specific Gravity.	Per Cent $\text{SnCl}_2 \cdot 2\text{H}_2\text{O}$ .	Specific Gravity.	Per Cent $\text{SnCl}_2 \cdot 2\text{H}_2\text{O}$ .	Specific Gravity.	Per Cent $\text{SnCl}_2 \cdot 2\text{H}_2\text{O}$ .	Specific Gravity.	Per Cent $\text{SnCl}_2 \cdot 2\text{H}_2\text{O}$ .
1.013	2	1.128	18	1.268	34	1.445	50	1.677	66
1.026	4	1.144	20	1.288	36	1.471	52	1.711	68
1.040	6	1.161	22	1.309	38	1.497	54	1.745	70
1.054	8	1.177	24	1.330	40	1.525	56	1.783	72
1.068	10	1.194	26	1.352	42	1.554	58	1.821	74
1.083	12	1.212	28	1.374	44	1.582	60	1.840	75
1.097	14	1.230	30	1.395	46	1.613	62		
1.113	16	1.249	32	1.421	48	1.644	64		

# LXIII. — ZINC, CADMIUM AND LITHIUM CHLORIDE

AT 19.5°

KRÄMER

Specific Gravity			Per Cent Salt.	Specific Gravity			Per Cent Salt.
$\text{ZnCl}_2$ .	$\text{CdCl}_2$ .	$\text{LiCl}$ .		$\text{ZnCl}_2$ .	$\text{CdCl}_2$ .	$\text{LiCl}$ .	
1.045	1.045		5	1.352			35
1.091	1.089	1.0580	10	1.420	1.472	1.2557	40
1.137	1.140		15	1.488			45
1.186	1.195	1.1172	20	1.566	1.656		50
1.238	1.256		25	1.650			55
1.291	1.321	1.1819	30	1.740	1.890		60

# LXIV. — ZINC SULPHATE SOLUTION AT 15°

Specific Gravity.	Per Cent $\text{ZnSO}_4 \cdot 7\text{H}_2\text{O}$ .	Specific Gravity.	Per Cent $\text{ZnSO}_4 \cdot 7\text{H}_2\text{O}$ .	Specific Gravity.	Per Cent $\text{ZnSO}_4 \cdot 7\text{H}_2\text{O}$ .
1.029	5	1.167	25	1.310	45
1.059	10	1.193	30	1.352	50
1.091	15	1.231	35	1.399	55
1.124	20	1.271	40	1.445	60

# LXV.—DENSITY OF WATER AT 0° TO 36°

WEIGHT IN GRAMS OF ONE CUBIC CENTIMETER OF WATER FREE FROM AIR  
AT TEMPERATURES OF 0 TO 36 CENTIGRADE BY THE HYDROGEN THER-  
MOMETER—ACCORDING TO THIESEN, SCHEEL, AND DIESSELHORST  
WISS. ABH. D. PHYS.—TECHN. REICHSANST. 3, 68: 1900

Degrees.	Tenths of Degrees.									
	0	.1	.2	.3	.4	.5	.6	.7	.8	.9
0	0.999868	874	881	887	893	899	905	911	916	922
1	927	932	936	941	945	950	954	957	961	965
2	968	971	974	977	980	982	985	987	989	991
3	992	994	995	996	997	998	999	999	*000	*000
4	1.000000	000	000	*999	*999	*998	*997	*996	*995	*993
5	0.999992	990	988	986	984	982	979	977	974	971
6	986	965	962	958	954	951	947	943	938	934
7	929	925	920	915	910	904	899	893	888	882
8	876	870	864	857	851	844	837	830	823	816
9	808	801	793	785	778	769	761	753	744	736
10	727	718	709	700	691	681	672	662	652	642
11	632	622	612	601	591	580	569	558	547	536
12	525	513	502	490	478	466	454	442	429	417
13	404	391	379	366	353	339	326	312	299	285
14	271	257	243	229	215	200	186	171	156	141
15	126	111	096	081	065	050	034	018	002	*986
16	0.998970	953	937	920	904	887	870	853	836	819
17	801	784	766	749	731	713	695	677	659	640
18	622	603	585	566	547	528	509	490	471	451
19	432	412	392	372	352	332	312	292	271	251
20	230	210	189	168	147	126	105	083	062	040
21	019	*997	*975	*953	*931	*909	*887	*864	*842	*819
22	0.997797	774	751	728	705	682	659	635	612	588
23	565	541	517	493	469	445	421	396	372	347
24	323	298	273	248	223	198	173	147	122	096
25	071	045	019	*994	*968	*941	*915	*889	*863	*836
26	0.996810	783	756	730	703	676	648	621	594	567
27	539	512	484	456	428	400	372	344	316	288
28	259	231	202	174	145	116	087	058	029	000
29	0.995971	941	912	882	853	823	793	763	733	703
30	673	643	613	582	552	521	491	460	429	398
31	367	336	305	273	242	211	179	148	116	084
32	052	020	*988	*956	*924	*892	*859	*827	*794	*762
33	0.994729	696	663	630	597	564	531	498	464	431
34	398	364	330	296	263	229	195	161	126	092
35	058	023	*989	*954	*920	*885	*850	*815	*780	*745

## LXVI. — DENSITY OF WATER AT 30° TO 102°

WEIGHT IN GRAMS OF ONE CUBIC CENTIMETER OF WATER FREE FROM  
AIR AT TEMPERATURES OF 30° TO 102° CENTIGRADE BY THE  
HYDROGEN THERMOMETER — ACCORDING TO M. THIESEN  
WISS. ABH. D. PHYS. — TECHN. REICHSANST. 4, 1: 1904

De- grees.	0	1	2	3	4	5	6	7	8	9
30	0.99567	537	505	473	440	406	371	336	299	262
40	224	186	147	107	066	025	*982	*940	*896	*852
50	0.98807	762	715	669	621	573	525	475	425	375
60	324	272	220	167	113	059	005	*950	*894	*838
70	0.97781	723	666	607	548	489	429	368	307	245
80	183	121	057	*994	*930	*865	*800	*734	*668	*601
90	0.96534	467	399	330	261	192	122	051	*981	*909
100	0.95838	765	693							

## LXVII. — DENSITY OF WATER AT 100° TO 320°

WEIGHT IN GRAMS OF ONE CUBIC CENTIMETER OF WATER AT TEMPER-  
ATURES OF 100° TO 320° CENTIGRADE  
ACCORDING TO W. RAMSAY, S. YOUNG, J. J. WATERSTON, AND G. A. HIRN

°C.	Density.	°C.	Density.	°C.	Density.	°C.	Density.
100	0.9585	160	0.9075	220	0.837	280	0.75
110	0.9510	170	0.8973	230	0.823	290	0.72
120	0.9434	180	0.8866	240	0.809	300	0.70
130	0.9352	190	0.8750	250	0.794	310	0.68
140	0.9264	200	0.8628	260	0.779	320	0.66
150	0.9173	210	0.850	270	0.765		

To reduce the densities of water free from air to the density of water containing air add .000003 for temperatures of 0 to 14, .000002 for temperatures of 15 to 19. For higher temperatures the correction is negligible.



LXVIII.— VOLUME IN CUBIC CENTIMETERS OF ONE  
GRAM OF WATER AT 0° TO 36° CENTIGRADE

BY THE HYDROGEN THERMOMETER—ACCORDING TO THIESEN,  
SCHEEL, AND DIESSELHORST  
WISS. ABH. D. PHYS.—TECHN. REICHSANST. 3, 69: 1900

Degrees.	Tenths of Degrees									
	0	.1	.2	.3	.4	.5	.6	.7	.8	.9
0	1.000132	126	119	113	107	101	095	089	084	079
1	073	069	064	059	055	051	047	043	039	035
2	032	029	026	023	020	018	016	013	011	009
3	008	006	005	004	003	002	001	001	000	000
4	000	000	000	001	001	002	003	004	005	007
5	008	010	012	014	016	018	021	023	026	029
6	032	035	039	042	046	050	054	058	062	066
7	071	075	080	085	090	096	101	107	112	118
8	124	130	137	143	149	156	163	170	177	184
9	192	199	207	215	223	231	239	247	256	264
10	273	282	291	300	309	319	328	338	348	358
11	368	378	388	399	409	420	431	442	453	464
12	476	487	499	511	522	534	547	559	571	584
13	596	609	622	635	648	661	675	688	702	715
14	729	743	757	772	786	800	815	830	844	859
15	874	890	905	920	936	951	967	983	999	*015
16	1.001031	048	064	081	098	114	131	148	165	183
17	200	218	235	253	271	289	307	325	343	361
18	380	399	417	436	455	474	493	513	532	551
19	571	591	610	630	650	671	691	711	732	752
20	773	794	815	836	857	878	899	921	942	964
21	985	*007	*029	*051	*073	*096	*118	*140	*163	*186
22	1.002208	231	254	277	300	324	347	370	394	418
23	441	465	489	513	538	562	586	611	635	660
24	685	710	735	760	785	810	835	861	886	912
25	938	964	990	*016	*042	*068	*094	*121	*147	*174
26	1.003201	227	254	281	308	336	363	390	418	445
27	473	501	529	556	585	613	641	669	698	726
28	755	783	812	841	870	899	928	957	987	*016
29	1.004046	075	105	135	165	194	225	255	285	315
30	346	376	407	437	468	499	530	561	592	623
31	655	686	717	749	781	812	844	876	908	940
32	972	*005	*037	*070	*102	*135	*167	*200	*233	*266
33	1.005299	332	365	399	432	465	499	533	566	600
34	634	668	702	736	771	805	839	874	908	943
35	978	*013	*047	*082	*118	*153	*188	*223	*259	*294

# LXIX. — VOLUME IN CUBIC CENTIMETERS OF ONE GRAM OF WATER AT 30° TO 102° CENTIGRADE

BY THE HYDROGEN THERMOMETER — ACCORDING TO M. THIESEN  
WISS. ABH. D. PHYS. — TECHN. REICHSANST. 4, 1: 1904

De- grees.	0	1	2	3	4	5	6	7	8	9
30	1.00435	466	497	530	563	598	633	669	706	743
40	782	821	861	901	943	985	*028	*072	*116	*162
50	1.01207	254	301	349	398	448	498	548	600	652
60	705	758	813	867	923	979	*036	*093	*151	*210
70	1.02270	330	390	452	514	576	639	703	768	833
80	899	965	*032	*099	*168	*237	*306	*376	*447	*518
90	1.03590	663	736	810	884	959	*035	*111	*188	*265
100	1.04343	422	501							

To reduce the volumes of water free from air to the volume of water containing air add .000003 for temperatures of 0 to 14, .000002 for temperatures of 15 to 19. For higher temperatures the correction is negligible.

# LXX. — VOLUME IN CUBIC CENTIMETERS OF ONE GRAM OF WATER AT 100° TO 320° CENTIGRADE

ACCORDING TO W. RAMSAY, S. YOUNG, J. J. WATERSTON, AND G. A. HIRN

°C.	Cubic Cent.	°C.	Cubic Cent.	°C.	Cubic Cent.	°C.	Cubic Cent.
100	1.0433	160	1.1019	220	1.195	280	1.34
110	1.0515	170	1.1145	230	1.215	290	1.38
120	1.0601	180	1.1279	240	1.236	300	1.42
130	1.0693	190	1.1429	250	1.259	310	1.46
140	1.0794	200	1.1590	260	1.283	320	1.51
150	1.0902	210	1.177	270	1.308		

# LXXI.—TENSION OF WATER VAPOR OVER ICE IN MILLIMETERS OF MERCURY

ACCORDING TO JUHLIN AND MARVIN

°C.	mm.	°C.	mm.	°C.	mm.	°C.	mm.
-50	0.034	-37	0.141	-24	0.534	-11	1.806
-49	0.038	-36	0.156	-23	0.589	-10	1.974
-48	0.043	-35	0.173	-22	0.648	-9	2.154
-47	0.048	-34	0.193	-21	0.714	-8	2.347
-46	0.054	-33	0.215	-20	0.787	-7	2.557
-45	0.061	-32	0.238	-19	0.868	-6	2.785
-44	0.068	-31	0.264	-18	0.955	-5	3.032
-43	0.076	-30	0.292	-17	1.048	-4	3.299
-42	0.085	-29	0.324	-16	1.148	-3	3.586
-41	0.095	-28	0.358	-15	1.257	-2	3.894
-40	0.105	-27	0.397	-14	1.375	-1	4.223
-39	0.115	-26	0.438	-13	1.506	-0	4.579
-38	0.127	-25	0.484	-12	1.650		

# LXXII.—TENSION OF WATER VAPOR OVER WATER IN MILLIMETERS OF MERCURY

ACCORDING TO REGNAULT, BROCH, AND JUHLIN

°C.	mm.	°C.	mm.	°C.	mm.	°C.	mm.
-20	0.960	-14	1.573	-9	2.335	-4	3.413
-19	1.044	-13	1.705	-8	2.521	-3	3.677
-18	1.135	-12	1.846	-7	2.722	-2	3.958
-17	1.233	-11	1.997	-6	2.937	-1	4.258
-16	1.338	-10	2.159	-5	3.167	-0	4.579
-15	1.451						

# LXXIII. — VAPOR TENSION OF WATER IN MILLI- METERS OF MERCURY — 2° TO +36° C.

ACCORDING TO REGNAULT, BROCH, AND WEIBE

°C.	0	.1	.2	.3	.4	.5	.6	.7	.8	.9
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
-2	3.958	3.929	3.900	3.872	3.844	3.815	3.787	3.760	3.732	3.705
-1	4.258	4.227	4.197	4.166	4.136	4.106	4.076	4.046	4.016	3.987
-0	4.579	4.546	4.513	4.481	4.448	4.416	4.384	4.352	4.321	4.289
0	4.579	4.612	4.646	4.679	4.713	4.747	4.782	4.816	4.851	4.886
1	4.921	4.957	4.992	5.028	5.064	5.101	5.137	5.174	5.211	5.248
2	5.286	5.324	5.362	5.400	5.438	5.477	5.516	5.555	5.595	5.635
3	5.675	5.715	5.755	5.796	5.837	5.878	5.920	5.961	6.003	6.046
4	6.088	6.131	6.174	6.217	6.261	6.305	6.349	6.393	6.438	6.483
5	6.528	6.574	6.620	6.666	6.712	6.759	6.806	6.853	6.901	6.949
6	6.997	7.045	7.094	7.143	7.192	7.242	7.292	7.342	7.392	7.443
7	7.494	7.546	7.598	7.650	7.702	7.755	7.808	7.861	7.914	7.968
8	8.023	8.077	8.132	8.187	8.243	8.299	8.355	8.412	8.469	8.526
9	8.584	8.642	8.700	8.759	8.818	8.877	8.937	8.997	9.057	9.118
10	9.179	9.240	9.302	9.364	9.427	9.490	9.553	9.616	9.680	9.745
11	9.810	9.875	9.940	10.006	10.072	10.139	10.206	10.274	10.342	10.410
12	10.479	10.548	10.617	10.687	10.757	10.828	10.899	10.970	11.042	11.114
13	11.187	11.260	11.333	11.407	11.481	11.556	11.631	11.706	11.782	11.859
14	11.936	12.013	12.091	12.169	12.247	12.326	12.406	12.486	12.566	12.647
15	12.728	12.810	12.892	12.974	13.057	13.141	13.225	13.309	13.394	13.480
16	13.565	13.651	13.738	13.825	13.913	14.001	14.090	14.179	14.269	14.359
17	14.450	14.541	14.632	14.724	14.817	14.910	15.003	15.097	15.192	15.287
18	15.383	15.479	15.575	15.672	15.770	15.868	15.967	16.066	16.166	16.266
19	16.367	16.469	16.571	16.673	16.776	16.880	16.984	17.088	17.193	17.299
20	17.406	17.513	17.620	17.728	17.837	17.947	18.057	18.167	18.278	18.390
21	18.503	18.616	18.729	18.844	18.959	19.074	19.190	19.307	19.424	19.542
22	19.661	19.780	19.900	20.021	20.142	20.264	20.386	20.510	20.634	20.758
23	20.883	21.010	21.137	21.264	21.393	21.522	21.652	21.782	21.913	22.045
24	22.178	22.311	22.446	22.581	22.716	22.853	22.990	23.128	23.266	23.406
25	23.546	23.686	23.828	23.970	24.113	24.257	24.401	24.547	24.693	24.839
26	24.987	25.135	25.284	25.434	25.584	25.736	25.888	26.041	26.195	26.349
27	26.505	26.661	26.818	26.976	27.134	27.294	27.454	27.615	27.777	27.939
28	28.103	28.267	28.432	28.599	28.766	28.933	29.102	29.271	29.442	29.613
29	29.785	29.958	30.132	30.307	30.482	30.659	30.836	31.015	31.194	31.374
30	31.555	31.737	31.919	32.103	32.288	32.473	32.660	32.846	33.036	33.225
31	33.416	33.607	33.799	33.992	34.187	34.382	34.578	34.775	34.973	35.172
32	35.372	35.573	35.775	35.978	36.182	36.387	36.593	36.800	37.008	37.217
33	37.427	37.638	37.851	38.064	38.278	38.493	38.710	38.927	39.146	39.365
34	39.586	39.807	40.030	40.254	40.479	40.705	40.933	41.161	41.390	41.621
35	41.583	42.085	42.319	42.554	42.791	43.028	43.266	43.506	43.747	43.989

# LXXIV.— VAPOR TENSION OF WATER IN MILLI- METERS OF MERCURY 30° TO 230°

ACCORDING TO REGNAULT, BROCH, AND WIEBE

Degrees.	0	1	2	3	4	5	6	7	8	9
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
30	31.56	33.42	35.37	37.43	39.59	41.85	44.23	46.73	49.35	52.09
40	54.97	57.98	61.13	64.43	67.89	71.50	75.28	79.23	83.36	87.67
50	92.17	96.87	101.77	106.88	112.21	117.77	123.56	129.59	135.87	142.41
60	149.21	156.29	163.65	171.30	179.25	187.51	196.09	204.99	214.24	223.84
70	233.79	244.11	254.84	265.91	277.41	289.32	301.65	314.42	327.64	341.32
80	355.47	370.11	385.25	400.90	417.08	433.79	451.07	468.91	487.33	506.36
90	526.00	546.27	567.19	588.77	611.04	634.01	657.69	682.11	707.29	733.24
100	760.00	787.57	816.0	845.3	875.4	906.4	938.3	971.1	1004.9	1039.6
110	1075.4	1112.1	1149.8	1188.6	1228.4	1269.4	1311.5	1354.7	1399.0	1444.5
120	1491	1539	1588	1639	1691	1744	1798	1854	1911	1970
130	2030	2092	2155	2220	2286	2354	2423	2494	2567	2641
140	2718	2795	2875	2957	3040	3125	3213	3302	3393	3486
150	3581	3678	3778	3879	3983	4088	4196	4307	4419	4534
160	4651	4771	4893	5018	5145	5274	5406	5541	5678	5819
170	5961	6107	6255	6406	6560	6717	6877	7040	7205	7374
180	7546	7721	7899	8080	8265	8453	8644	8838	9036	9237
190	9442	9650	9862	10078	10296	10519	10745	10975	11209	11447
200	11688	11934	12183	12436	12694	12955	13220	13490	13764	14042
210	14324	14611	14901	15197	15496	15800	16109	16422	16740	17062
220	17389	17721	18058	18399	18745	19096	19452	19813	20179	20549
230	20925									

# LXXV.—VAPOR PRESSURE OF WATER

ACCORDING TO REGNAULT

°C.	°F.	Inches of Mercury.	Pounds per sq. inch.	Grams per sq. Centimeter.	°C.	°F.	Inches of Mercury.	Pounds per sq. inch.	Grams per sq. Centimeter.
0	32.0	0.181	0.0890	6.254	38	100.4	1.941	0.954	67.026
1	33.8	0.194	0.0955	6.716	39	102.2	2.049	1.007	70.752
2	35.6	0.209	0.1025	7.206	40	104.0	2.162	1.061	74.653
3	37.4	0.224	0.1100	7.736	41	105.8	2.280	1.121	78.678
4	39.2	0.240	0.1180	8.291	42	107.6	2.404	1.216	82.947
5	41.0	0.257	0.1263	8.878	43	109.4	2.533	1.244	87.488
6	42.8	0.276	0.1354	9.517	44	111.2	2.669	1.312	92.165
7	44.6	0.295	0.1452	10.183	45	113.0	2.811	1.381	97.059
8	46.4	0.316	0.1551	10.904	46	114.8	2.959	1.454	102.184
9	48.2	0.338	0.1657	11.651	47	116.6	3.114	1.530	107.528
10	50.0	0.361	0.1773	12.467	48	118.4	3.276	1.609	113.115
11	51.8	0.386	0.1893	13.310	49	120.2	3.444	1.692	118.962
12	53.6	0.412	0.2023	14.207	50	122.0	3.62	1.78	125.05
13	55.4	0.439	0.2158	15.173	51	123.8	3.81	1.87	131.42
14	57.2	0.469	0.2303	16.192	52	125.6	4.00	1.96	138.04
15	59.0	0.500	0.2456	17.266	53	127.4	4.20	2.06	144.98
16	60.8	0.533	0.2618	18.408	54	129.2	4.41	2.17	152.20
17	62.6	0.568	0.2789	19.605	55	131.0	4.63	2.27	159.72
18	64.4	0.605	0.2970	20.883	56	132.8	4.85	2.39	167.55
19	66.2	0.644	0.3162	22.229	57	134.6	5.09	2.50	175.72
20	68.0	0.685	0.3363	23.643	58	136.4	5.33	2.62	184.23
21	69.8	0.728	0.3577	25.152	59	138.2	5.59	2.75	193.08
22	71.6	0.774	0.3802	26.729	60	140.0	5.86	2.88	202.29
23	73.4	0.822	0.4040	28.401	61	141.8	6.14	3.01	211.87
24	75.2	0.873	0.4289	30.155	62	143.6	6.42	3.16	221.84
25	77.0	0.927	0.4554	32.018	63	145.4	6.72	3.30	232.20
26	78.8	0.984	0.4833	33.975	64	147.2	7.04	3.46	242.97
27	80.6	1.044	0.5126	36.042	65	149.0	7.36	3.62	254.17
28	82.4	1.106	0.5434	38.204	66	150.8	7.70	3.78	265.79
29	84.2	1.172	0.5759	40.488	67	152.6	8.05	3.95	277.87
30	86.0	1.242	0.6101	42.894	68	154.4	8.41	4.13	290.40
31	87.8	1.315	0.6461	45.423	69	156.2	8.79	4.32	303.41
32	89.6	1.392	0.6838	48.074	70	158.0	9.18	4.51	316.90
33	91.4	1.473	0.7234	50.861	71	159.8	9.58	4.71	330.90
34	93.2	1.558	0.7655	53.798	72	161.6	10.00	4.91	345.42
35	95.0	1.647	0.810	56.870	73	163.4	10.44	5.12	360.49
36	96.8	1.740	0.855	60.093	74	165.2	10.89	5.35	376.08
37	98.6	1.838	0.903	63.478	75	167.0	11.36	5.58	392.26

°C.	°F.	Inches of Mercury.	Pounds per sq. inch.	Grams per sq. Centimeter.	°C.	°F.	Atmospheres.	Pounds per sq. inch.	Grams per sq. Centimeter.
76	168.8	11.84	5.82	409.01	117	242.6	1.782	26.20	1841.74
77	170.6	12.35	6.06	426.36	118	244.4	1.841	27.06	1902.05
78	172.4	12.87	6.32	444.32	119	246.2	1.901	27.94	1963.95
79	174.2	13.40	6.58	462.92	120	248.0	1.962	28.85	2027.48
80	176.0	13.96	6.85	482.15	121	249.8	2.025	29.78	2092.70
81	177.8	14.54	7.14	502.07	122	251.6	2.091	30.73	2159.62
82	179.6	15.14	7.44	522.67	123	253.4	2.157	31.70	2228.26
83	181.4	15.75	7.74	543.96	124	255.2	2.225	32.70	2298.69
84	183.2	16.39	8.05	565.99	125	257.0	2.295	33.72	2370.91
85	185.0	17.05	8.37	588.74	126	258.8	2.366	34.78	2444.96
86	186.8	17.73	8.71	612.26	127	260.6	2.430	35.86	2520.89
87	188.6	18.43	9.05	636.57	128	262.4	2.515	36.97	2598.76
88	190.4	19.16	9.41	661.68	129	264.2	2.592	38.11	2678.54
89	192.2	19.91	9.78	687.61	130	266.0	2.671	39.26	2760.29
90	194.0	20.69	10.16	714.38	131	267.8	2.753	40.47	2844.12
91	195.8	21.49	10.56	740.31	132	269.6	2.836	41.68	2929.89
92	197.6	22.31	10.95	770.54	133	271.4	2.921	42.93	3017.80
93	199.4	23.17	11.38	799.98	134	273.2	3.008	44.21	3107.85
94	201.2	24.04	11.81	830.34	135	275.0	3.097	45.52	3200.04
95	203.0	24.95	12.26	861.66	136	276.8	3.188	46.87	3294.43
96	204.8	25.89	12.71	893.97	137	278.6	3.282	48.24	3391.06
97	206.6	26.85	13.19	927.26	138	280.4	3.378	49.65	3489.99
98	208.4	27.85	13.68	961.59	139	282.2	3.476	51.06	3591.29
99	210.2	28.87	14.18	996.98	140	284.0	3.576	52.55	3694.78
100	212.0	29.92	14.70	1033.26	141	285.8	3.678	54.07	3800.75
		1.000*			142	287.6	3.783	55.60	3909.14
101	213.8	1.036*	15.23	1070.78	143	289.4	3.890	57.16	4020.03
102	215.6	1.074*	15.79	1109.41	144	291.2	4.000	58.79	4133.42
103	217.4	1.112*	16.35	1149.21	145	293.0	4.113	60.44	4249.37
104	219.2	1.152*	16.94	1190.17	146	294.8	4.227	62.13	4367.91
105	221.0	1.193*	17.53	1232.32	147	296.6	4.344	63.86	4489.09
106	222.8	1.235*	18.15	1275.69	148	298.4	4.464	65.62	4612.96
107	224.6	1.278*	18.78	1320.32	149	300.2	4.587	67.41	4739.55
108	226.4	1.322*	19.44	1366.24	150	302.0	4.712	69.26	4868.9
109	228.2	1.368*	20.11	1413.47	151	303.8	4.840	71.14	5001.1
110	230.0	1.415*	20.80	1462.03	152	305.6	4.971	73.06	5136.1
111	231.8	1.463*	21.51	1511.97	153	307.4	5.104	75.02	5275.0
112	233.6	1.513*	22.24	1563.26	154	309.2	5.240	77.03	5414.8
113	235.4	1.564*	22.99	1615.99	155	311.0	5.380	79.07	5558.6
114	237.2	1.616*	23.76	1670.18	156	312.8	5.522	81.22	5705.5
115	239.0	1.670*	24.55	1725.84	157	314.6	5.667	83.29	5855.5
116	240.8	1.726*	25.73	1783.02	158	316.4	5.815	85.47	6008.5

\* Atmospheres.

°C.	°F.	Atmospheres.	Pounds per sq. inch.	Grams per sq. Centimeter.	°C.	°F.	Atmospheres.	Pounds per sq. inch.	Grams per sq. Centimeter.
159	318.2	5.966	87.69	6164.7	195	383.0	13.842	203.43	14302.7
160	320.0	6.120	89.96	6324.2	196	384.8	14.139	207.81	14609.8
161	321.8	6.278	92.27	6486.8	197	386.6	14.441	212.25	14921.2
162	323.6	6.439	94.63	6652.8	198	388.4	14.749	216.77	15240.4
163	325.4	6.603	97.04	6822.2	199	390.2	15.062	221.37	15563.5
164	327.2	6.770	99.50	6994.9	200	392.0	15.380	226.04	15891.9
165	329.0	6.940	102.01	7171.1	201	393.8	15.703	230.79	16225.5
166	330.8	7.114	104.56	7350.7	202	395.6	16.031	235.61	16564.7
167	332.6	7.291	107.18	7533.9	203	397.4	16.364	240.54	16908.8
168	334.4	7.472	109.84	7720.7	204	399.2	16.703	245.49	17257.3
169	336.2	7.656	112.53	7911.1	205	401.0	17.047	250.53	17614.0
170	338.0	7.844	115.29	8105.2	206	402.8	17.396	255.67	17974.9
171	339.8	8.036	118.11	8303.1	207	404.6	17.751	260.88	18341.5
172	341.6	8.231	120.98	8504.7	208	406.4	18.111	266.18	18713.7
173	343.4	8.430	123.90	8710.2	209	408.2	18.477	271.55	19091.6
174	345.2	8.632	126.87	8919.5	210	410.0	18.848	277.01	19475.4
175	347.0	8.839	129.91	9132.8	211	411.8	19.226	282.58	19864.9
176	348.8	9.049	133.00	9350.0	212	413.6	19.608	288.21	20260.5
177	350.6	9.263	136.15	9571.3	213	415.4	19.997	293.92	20661.9
178	352.4	9.481	139.35	9796.6	214	417.2	20.391	299.72	21069.3
179	354.2	9.703	142.62	10026.1	215	419.0	20.791	305.57	21482.8
180	356.0	9.929	145.93	10259.7	216	420.8	21.197	311.57	21902.4
181	357.8	10.150	149.32	10497.7	217	422.6	21.690	317.62	22328.3
182	359.6	10.394	152.77	10739.9	218	424.4	22.027	323.78	22760.3
183	361.4	10.633	156.32	10986.4	219	426.2	22.452	330.01	23198.6
184	363.2	10.876	159.84	11237.3	220	428.0	22.882	336.30	23643.2
185	365.0	11.123	163.47	11490.0	221	429.8	23.319	342.70	24094.3
186	366.8	11.374	167.17	11752.5	222	431.6	23.761	349.21	24551.8
187	368.6	11.630	170.94	12016.9	223	433.4	24.210	355.81	25015.8
188	370.4	11.885	174.76	12285.9	224	435.2	24.666	362.50	25486.4
189	372.2	12.155	178.65	12559.6	225	437.0	25.128	369.29	25963.5
190	374.0	12.425	182.61	12837.9	226	438.8	25.596	376.17	26447.4
191	375.8	12.699	186.63	13121.0	227	440.6	26.071	383.15	26938.0
192	377.6	12.977	190.72	13408.9	228	442.4	26.552	390.22	27435.4
193	379.4	13.261	194.88	13701.7	229	444.2	27.040	397.40	27939.6
194	381.2	13.549	199.13	13999.4					



# LXXVI. — BOILING POINT OF WATER AT BAROMETRIC PRESSURES OF 680 MM. TO 800 MM.

ACCORDING TO REGNAULT, BROCH, AND WIEBE

Baro- metric Pressure mm.	Boiling Point °C.	Baro- metric Pressure mm.	Boiling Point °C.	Baro- metric Pressure mm.	Boiling Point °C.	Baro- metric Pressure mm.	Boiling Point °C.
680	96.915	711	98.145	741	99.293	771	100.403
681	96.955	712	98.184	742	99.331	772	100.439
682	96.996	713	98.223	743	99.368	773	100.475
683	97.036	714	98.261	744	99.406	774	100.511
684	97.076	715	98.300	745	99.443	775	100.548
685	97.116	716	98.339	746	99.481	776	100.584
686	97.156	717	98.378	747	99.518	777	100.620
687	97.197	718	98.416	748	99.555	778	100.656
688	97.237	719	98.455	749	99.592	779	100.692
689	97.277	720	98.493	750	99.630	780	100.728
690	97.317	721	98.532	751	99.667	781	100.764
691	97.357	722	98.570	752	99.704	782	100.800
692	97.396	723	98.609	753	99.741	783	100.836
693	97.436	724	98.647	754	99.778	784	100.872
694	97.476	725	98.686	755	99.815	785	100.908
695	97.516	726	98.724	756	99.852	786	100.944
696	97.555	727	98.762	757	99.889	787	100.979
697	97.595	728	98.800	758	99.926	788	101.015
698	97.635	729	98.838	759	99.963	789	101.051
699	97.674	730	98.877	760	100.000	790	101.087
700	97.714	731	98.915	761	100.037	791	101.122
701	97.753	732	98.953	762	100.074	792	101.158
702	97.792	733	98.991	763	100.110	793	101.193
703	97.832	734	99.029	764	100.147	794	101.229
704	97.871	735	99.067	765	100.184	795	101.264
705	97.910	736	99.104	766	100.220	796	101.300
706	97.949	737	99.142	767	100.257	797	101.335
707	97.989	738	99.180	768	100.293	798	101.370
708	98.028	739	99.218	769	100.330	799	101.406
709	98.067	740	99.255	770	100.366	800	101.441
710	98.106						

# LXXVII. — VAPOR TENSION OF MERCURY

RAMSAY AND YOUNG, J. CHEM. SOC. **49**, 37 ; 1886

°C.	mm.	°C.	mm.	°C.	mm.	°C.	mm.
40	0.0008	160	4.013	280	157.378	400	1495.60
50	0.015	170	5.904	290	198.982	410	1733.79
60	0.029	180	8.535	300	246.704	420	2000.21
70	0.052	190	12.137	310	304.794	430	2298.80
80	0.092	200	17.015	320	373.528	440	2628.79
90	0.160	210	23.482	330	454.277	450	2996.06
100	0.270	220	31.957	340	546.715	460	3399.50
110	0.445	230	42.919	350	658.515	470	3843.68
120	0.719	240	56.919	360	785.107	480	4327.14
130	1.137	250	74.592	370	930.335	490	4856.74
140	1.763	260	96.661	380	1096.22	500	5434.99
150	2.684	270	123.905	390	1283.71	510	6059.16
						520	6736.60

# LXXVIII. — VAPOR TENSION OF MERCURY

CAILLETET, CORLARDEAU, AND RIVIÈRE, C. R. **130**, 1585; 1900

°C.	Atm.	°C.	Atm.	°C.	Atm.	°C.	Atm.
400	2.1	550	13.8	700	50	850	137.5
450	4.25	600	22.3	750	72	880	162
500	8	650	34	800	102		

# EQUIVALENTS OF METRIC AND CUSTOM- ARY (U. S.) WEIGHTS AND MEASURES

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## STANDARDS OF WEIGHTS AND MEASURES \*

By the concurrent action of the principal governments of the world an International Bureau of Weights and Measures has been established near Paris. Under the direction of the International Committee, two ingots were cast of pure platinum-iridium in the proportion of nine parts of the former to one of the latter metal. From one of these a certain number of kilograms were prepared, from the other a definite number of meter bars. These standards of weight and length were intercompared, without preference, and certain ones were selected as International prototype standards. The others were distributed by lot, in September, 1887, to the different governments, and are called National Prototype Standards. Those apportioned to the United States were received in 1890, and are kept by the Bureau of Standards in Washington, D. C.

The International Standard Meter is defined by the distance between two lines at 0° Centigrade, on a platinum-iridium bar deposited at the International Bureau of Weights and Measures near Paris, France.

The International Standard Kilogram is a mass of platinum-iridium deposited at the same place, and its weight in vacuo is the same as that of the Kilogramme des Archives.

The International Standard Meter and Kilogram are the fundamental standards for the United States.

The liter is equal to a cubic decimeter, and it is measured by the quantity of distilled water which, at its maximum density, will counterpoise the standard kilogram in a vacuum, the volume of such a quantity of water being, as nearly as has been ascertained, equal to a cubic decimeter.

The grain Troy is the same as the grain Avoirdupois, and the pound Avoirdupois in use in the United States is equal to the British pound Avoirdupois.

The nautical mile adopted by the U. S. Coast and Geodetic Survey many years ago is defined as the length of a minute of arc of a great circle of a sphere whose surface equals that of the earth (Clarke's Spheroid of 1866).

\* Quoted from Smithsonian Physical Tables, 3d Ed., 1904.

## LXXIX.—FUNDAMENTAL EQUIVALENTS \*

1 meter	= 39.37 inches (law of July 28, 1866).
1 yard	= $\frac{3}{4}$ meter.
1 pound avoirdupois	= 453.5924277 grams.
1 pound troy	= $\frac{7}{8}$ pound avoirdupois.
1 gallon	= 231 cubic inches.
1 bushel	= 2,150.42 cubic inches.

All lengths, areas, and cubic measures are derived from the international meter, the legal equivalent being 1 meter = 39.37 inches (law of July 28, 1866). In 1893 the United States Office of Standard Weights and Measures was authorized to derive the yard from the meter, using, for the purpose, the relation legalized in 1866, 1 yard equals  $\frac{3}{4}$  meter, and the customary weights are likewise referred to the kilogram (executive order, approved April 5, 1893). This action fixes the values, inasmuch as the reference standards are as perfect and unalterable as it is possible for human skill to make them.

All capacities are based on the practical equivalent 1 cubic decimeter equals 1 liter. The decimeter is equal to 3.937 inches in accordance with the legal equivalent of the meter given above. The gallon referred to in the tables is the United States gallon of 231 cubic inches. The bushel is the United States bushel of 2,150.42 cubic inches. These units must not be confused with the British units of the same name which differ from those used in the United States. The British gallon is approximately 20 per cent larger and the British bushel 3 per cent larger than the corresponding units used in this country.

The customary weights derived from the international kilogram are based on the value 1 avoirdupois pound = 453.5924277 grams. This value is carried out farther than that given in the law, but is in accord with the latter as far as it is there given. The value of the troy pound is based upon the relation just mentioned and also the equivalent  $\frac{7}{8}$  avoirdupois pound equals 1 troy pound.

\* Quoted from Table of Equivalents, U. S. Bureau of Standards.

# LXXX.—COMPARISON OF METRIC AND CUSTOMARY UNITS FROM 1 TO 10\*

## LENGTHS

Inches.	Millimeters.	Inches.	Centimeters.	Feet.	Meters.
0.03937 =	1	0.3937 =	1	1	= 0.304801
0.07874 =	2	0.7874 =	2	2	= 0.609601
0.11811 =	3	1 =	2.54001	3	= 0.914402
0.15748 =	4	1.1811 =	3	3.28083 =	1
0.19685 =	5	1.5748 =	4	4	= 1.219202
0.23622 =	6	1.9685 =	5	5	= 1.524003
0.27559 =	7	2 =	5.08001	6	= 1.828804
0.31496 =	8	2.3622 =	6	6.56167 =	2
0.35433 =	9	2.7559 =	7	7	= 2.133604
1 =	25.4001	3 =	7.62002	8	= 2.438405
2 =	50.8001	3.1496 =	8	9	= 2.743205
3 =	76.2002	3.5433 =	9	9.84250 =	3
4 =	101.6002	4 =	10.16002	13.12333 =	4
5 =	127.0003	5 =	12.70003	16.40417 =	5
6 =	152.4003	6 =	15.24003	19.68500 =	6
7 =	177.8004	7 =	17.78004	22.96583 =	7
8 =	203.2004	8 =	20.32004	26.24667 =	8
9 =	228.6005	9 =	22.86005	29.52750 =	9

U. S. Yards.	Meters.	U. S. Miles.	Kilometers.
1 =	0.914402	0.62137 =	1
1.093611 =	1	1 =	1.60935
2 =	1.828804	1.24274 =	2
2.187222 =	2	1.86411 =	3
3 =	2.743205	2 =	3.21869
3.280833 =	3	2.48548 =	4
4 =	3.657607	3 =	4.82804
4.374444 =	4	3.10685 =	5
5 =	4.572009	3.72822 =	6
5.468056 =	5	4 =	6.43739
6 =	5.486411	4.34959 =	7
6.561667 =	6	4.97096 =	8
7 =	6.400813	5 =	8.04674
7.655278 =	7	5.59233 =	9
8 =	7.315215	6 =	9.65608
8.748889 =	8	7 =	11.26543
9 =	8.229616	8 =	12.87478
9.842500 =	9	9 =	14.48412

\* Table of Equivalents, U. S. Bureau of Standards.

## AREAS

Square Inches.	Square Millimeters.	Square Inches.	Square Centimeters.	Square Feet.	Square Meters.
0.00155 =	1	0.1550 =	1	1 =	0.09290
0.00310 =	2	0.3100 =	2	2 =	0.18581
0.00465 =	3	0.4650 =	3	3 =	0.27871
0.00620 =	4	0.6200 =	4	4 =	0.37161
0.00775 =	5	0.7750 =	5	5 =	0.46452
0.00930 =	6	0.9300 =	6	6 =	0.55742
0.01085 =	7	1 =	6.452	7 =	0.65032
0.01240 =	8	1.0850 =	7	8 =	0.74323
0.01395 =	9	1.2400 =	8	9 =	0.83613
1 =	645.16	1.3950 =	9	10.764 =	1
2 =	1,290.33	2 =	12.903	21.528 =	2
3 =	1,935.49	3 =	19.355	32.292 =	3
4 =	2,580.65	4 =	25.807	43.055 =	4
5 =	3,225.81	5 =	32.258	53.819 =	5
6 =	3,870.98	6 =	38.710	64.583 =	6
7 =	4,516.14	7 =	45.161	75.347 =	7
8 =	5,161.30	8 =	51.613	86.111 =	8
9 =	5,806.46	9 =	58.065	96.875 =	9
Square Yards.	Square Meters.	Square Miles.	Square Kilometers.	Acres.	Hectares.
1 =	0.8361	0.3861 =	1	1 =	0.4047
1.1960 =	1	0.7722 =	2	2 =	0.8094
2 =	1.6723	1 =	2.5900	2.471 =	1
2.3920 =	2	1.1583 =	3	3 =	1.2141
3 =	2.5084	1.5444 =	4	4 =	1.6187
3.5880 =	3	1.9305 =	5	4.942 =	2
4 =	3.3445	2 =	5.1800	5 =	2.0234
4.7839 =	4	2.3166 =	6	6 =	2.4281
5 =	4.1807	2.7027 =	7	7 =	2.8328
5.9799 =	5	3 =	7.7700	7.413 =	3
6 =	5.0168	3.0888 =	8	8 =	3.2375
7 =	5.8529	3.4749 =	9	9 =	3.6422
7.1759 =	6	4 =	10.3600	9.884 =	4
8 =	6.6890	5 =	12.9500	12.355 =	5
8.3719 =	7	6 =	15.5400	14.826 =	6
9 =	7.5252	7 =	18.1300	17.297 =	7
9.5679 =	8	8 =	20.7200	19.768 =	8
10.7639 =	9	9 =	23.3100	22.239 =	9

## VOLUMES

Cubic Inches.	Cubic Millimeters.	Cubic Inches.	Cubic Centimeters.	Cubic Feet.	Cubic Meters.
0.000061 =	1	0.0610 =	1	1 =	0.02832
0.000122 =	2	0.1220 =	2	2 =	0.05663
0.000183 =	3	0.1831 =	3	3 =	0.08495
0.000244 =	4	0.2441 =	4	4 =	0.11327
0.000305 =	5	0.3051 =	5	5 =	0.14159
0.000366 =	6	0.3661 =	6	6 =	0.16990
0.000427 =	7	0.4272 =	7	7 =	0.19822
0.000488 =	8	0.4882 =	8	8 =	0.22654
0.000549 =	9	0.5492 =	9	9 =	0.25485
1 =	16,387.2	1 =	16.3872	35.314 =	1
2 =	32,774.3	2 =	32.7743	70.629 =	2
3 =	49,161.5	3 =	49.1615	105.943 =	3
4 =	65,548.6	4 =	65.5486	141.258 =	4
5 =	81,935.8	5 =	81.9358	176.572 =	5
6 =	98,323.0	6 =	98.3230	211.887 =	6
7 =	114,710.1	7 =	114.7101	247.201 =	7
8 =	131,097.3	8 =	131.0973	282.516 =	8
9 =	147,484.5	9 =	147.4845	317.830 =	9

Cubic Yards.	Cubic Meters.	Cubic Yards.	Cubic Meters.	Cubic Yards.	Cubic Meters.
1 =	0.7645	4 =	3.0582	7.8477 =	6
1.3079 =	1	5 =	3.8228	8 =	6.1165
2 =	1.5291	5.2318 =	4	9 =	6.8810
2.6159 =	2	6 =	4.5874	9.1556 =	7
3 =	2.2937	6.5397 =	5	10.4635 =	8
3.9238 =	3	7 =	5.3519	11.7715 =	9

## CAPACITIES

Milliliters. (cc.)	U.S. Liquid Ounces.	Milliliters. (cc.)	U.S. Apothe- caries' Drams.	U.S. Apothe- caries' Scruples.	Milliliters. (cc.)
1	= 0.03381	1	= 0.2705	0.8115	= 1
2	= 0.06763	2	= 0.5410	1	= 1.2322
3	= 0.10144	3	= 0.8115	1.6231	= 2
4	= 0.13526	3.6967	= 1	2	= 2.4645
5	= 0.16907	4	= 1.0820	2.4346	= 3
6	= 0.20288	5	= 1.3525	3	= 3.6967
7	= 0.23670	6	= 1.6231	3.2461	= 4
8	= 0.27051	7	= 1.8936	4	= 4.9290
9	= 0.30432	7.3934	= 2	4.0577	= 5
29.574	= 1	8	= 2.1641	4.8692	= 6
59.147	= 2	9	= 2.4346	5	= 6.1612
88.721	= 3	11.0901	= 3	5.6807	= 7
118.295	= 4	14.7869	= 4	6	= 7.3934
147.869	= 5	18.4836	= 5	6.4923	= 8
177.442	= 6	22.1803	= 6	7	= 8.6257
207.016	= 7	25.8770	= 7	7.3038	= 9
236.590	= 8	29.5737	= 8	8	= 9.8579
266.163	= 9	33.2704	= 9	9	= 11.0901

U.S. Liquid Quarts.	Liters.	U.S. Liquid Gallons.	Liters.	U.S. Dry Quarts.	Liters.
1	= 0.94636	0.26417	= 1	0.9081	= 1
1.05668	= 1	0.52834	= 2	1	= 1.1012
2	= 1.89272	0.79251	= 3	1.8162	= 2
2.11336	= 2	1	= 3.78543	2	= 2.2025
3	= 2.83908	1.05668	= 4	2.7242	= 3
3.17005	= 3	1.32085	= 5	3	= 3.3037
4	= 3.78543	1.58502	= 6	3.6323	= 4
4.22673	= 4	1.84919	= 7	4	= 4.4049
5	= 4.73179	2	= 7.57087	4.5404	= 5
5.28341	= 5	2.11336	= 8	5	= 5.5061
6	= 5.67815	2.37753	= 9	5.4485	= 6
6.34009	= 6	3	= 11.35630	6	= 6.6074
7	= 6.62451	4	= 15.14174	6.3565	= 7
7.39677	= 7	5	= 18.92717	7	= 7.7086
8	= 7.57088	6	= 22.71261	7.2646	= 8
8.45345	= 8	7	= 26.49804	8	= 8.8098
9	= 8.51723	8	= 30.28348	8.1727	= 9
9.51014	= 9	9	= 34.06891	9	= 9.9110



## CAPACITIES (Continued).

U.S. Pecks.	Liters.	Dekaliters.	U.S. Pecks.	U.S. Bushels.	Hectoliters.
0.11351 = 1		0.8810 = 1		1 = 0.35239	
0.22702 = 2		1 = 1.1351		2 = 0.70479	
0.34053 = 3		1.7620 = 2		2.83774 = 1	
0.45404 = 4		2 = 2.2702		3 = 1.05718	
0.56755 = 5		2.6429 = 3		4 = 1.40957	
0.68106 = 6		3 = 3.4053		5 = 1.76196	
0.79457 = 7		3.5239 = 4		5.67548 = 2	
0.90808 = 8		4 = 4.5404		6 = 2.11436	
1 = 8.80982		4.4049 = 5		7 = 2.46675	
1.02157 = 9		5 = 5.6755		8 = 2.81914	
2 = 17.61964		5.2859 = 6		8.51323 = 3	
3 = 26.42946		6 = 6.8106		9 = 3.17154	
4 = 35.23928		6.1669 = 7		11.35097 = 4	
5 = 44.04910		7 = 7.9457		14.18871 = 5	
6 = 52.85892		7.0479 = 8		17.02645 = 6	
7 = 61.66874		7.9288 = 9		19.86420 = 7	
8 = 70.47856		8 = 9.0808		22.70194 = 8	
9 = 79.28838		9 = 10.2159		25.53968 = 9	

U.S. Bushels per Acre.	Hectoliters per Hectar.	U.S. Bushels per Acre.	Hectoliters per Hectar.	U.S. Bushels per Acre.	Hectoliters per Hectar.
1 = 0.87078		4 = 3.48311		7 = 6.09545	
1.14840 = 1		4.59359 = 4		8 = 6.96622	
2 = 1.74156		5 = 4.35389		8.03879 = 7	
2.29680 = 2		5.74199 = 5		9 = 7.83700	
3 = 2.61233		6 = 5.22467		9.18719 = 8	
3.44519 = 3		6.89039 = 6		10.33558 = 9	

## MASSES

Grains.	Grams.	Avoirdupois Ounces.	Grams.	Troy Ounces.	Grams.
1	= 0.06480	0.03527	= 1	0.03215	= 1
2	= 0.12960	0.07055	= 2	0.06430	= 2
3	= 0.19440	0.10582	= 3	0.09645	= 3
4	= 0.25920	0.14110	= 4	0.12860	= 4
5	= 0.32399	0.17637	= 5	0.16075	= 5
6	= 0.38879	0.21164	= 6	0.19290	= 6
7	= 0.45359	0.24692	= 7	0.22506	= 7
8	= 0.51839	0.28219	= 8	0.25721	= 8
9	= 0.58319	0.31747	= 9	0.28936	= 9
15.4324	= 1	1	= 28.3495	1	= 31.10348
30.8647	= 2	2	= 56.6991	2	= 62.20696
46.2971	= 3	3	= 85.0486	3	= 93.31044
61.7294	= 4	4	= 113.3981	4	= 124.41392
77.1618	= 5	5	= 141.7476	5	= 155.51740
92.5941	= 6	6	= 170.0972	6	= 186.62088
108.0265	= 7	7	= 198.4467	7	= 217.72437
123.4589	= 8	8	= 226.7962	8	= 248.82785
138.8912	= 9	9	= 255.1457	9	= 279.93133

Avoirdupois Pounds.	Kilograms.	Troy Pounds.	Kilograms.
1	= 0.45359	1	= 0.37324
2	= 0.90718	2	= 0.74648
2.20462	= 1	2.67923	= 1
3	= 1.36078	3	= 1.11973
4	= 1.81437	4	= 1.49279
4.40924	= 2	5	= 1.86621
5	= 2.26796	5.35846	= 2
6	= 2.72155	6	= 2.23945
6.61387	= 3	7	= 2.61269
7	= 3.17515	8	= 2.98593
8	= 3.62874	8.03769	= 3
8.81849	= 4	9	= 3.35918
9	= 4.08233	10.71691	= 4
11.02311	= 5	13.39614	= 5
13.22773	= 6	16.07537	= 6
15.43236	= 7	18.75460	= 7
17.63698	= 8	21.43383	= 8
19.84160	= 9	24.11306	= 9

# EQUIVALENTS OF METRIC AND BRITISH IMPERIAL WEIGHTS AND MEASURES\*

## STANDARDS AND FUNDAMENTAL EQUIVALENTS

The meter is the length, at the temperature of 0° C., of the platinum-iridium bar deposited with the Board of Trade.

The present legal equivalent of the meter is 39.37079 inches. If a brass meter is, however, compared, not at its legal temperature (0° C. or 32° F.), but at the temperature of 62° F., with a brass yard also at the temperature of 62° F., then the apparent equivalent of the meter would be nearly 39.382 inches.

The kilogram is the weight in vacuo at 0° C. of the platinum-iridium weight deposited with the Board of Trade.

The liter contains one kilogram weight of distilled water at its maximum density (4° C.), the barometer being at 760 millimeters.

## LXXXI. — METRIC TO IMPERIAL

### LINEAR MEASURE

millimeter (mm., .001 m.)	= 0.03937 inches
centimeter (.01 m.)	= 0.39371 inches
decimeter (.1 m.)	= 3.93708 inches
meter (m.)	= 39.37079 inches
	= 3.28089917 feet
	= 1.09363306 yards
dekameter (10 m.)	= 10.93633 yards
hectometer (100 m.)	= 109.36331 yards
kilometer (1,000 m.)	= 0.62138 mile
myriameter (10,000 m.)	= 6.21382 miles
micron	= 0.001 mm.

### SQUARE MEASURE

sq. centimeter	= 0.15501 sq. inch
sq. decimeter (100 sq. centm.)	= 15.50059 sq. inches
sq. meter or centiare (100 sq. decm.)	= 10.76430 sq. feet
are (100 sq. m.)	= 1.19603 sq. yards
hectare (100 ares or 10,000 sq. m.)	= 119.60333 sq. yards
	= 2.47115 acres

### CUBIC MEASURE

cub. centimeter (c.c. or 1,000 cubic millimeters)	= 0.06103 cub. inch
cub. decimeter (c.d. or 1,000 c.c.)	= 61.02705 cub. inches
cub. meter or stere (1,000 c.d.)	= 35.31658074 cu. feet
	= 1.30802151 cu. yards

\* Quoted from sheets issued in 1890 by the Standard Office of the British Board of Trade.

## MEASURE OF CAPACITY

milliliter (ml., c.c. or .001 liter)	= 0.06103 cub. inch
centiliter (.01 liter)	= 0.61027 " "
	= 0.07043 gill
deciliter (.1 liter)	= 0.17608 pint
liter (1,000 c.c. or cub. decimeter)	= 1.76077 pints
dekaliter (10 liters)	= 2.20097 gallons
hectoliter (100 liters)	= 2.75121 bushels
kiloliter (1,000 liters)	= 3.43901 quarters
microliter	= 0.001 c.c.

## APOTHECARIES' MEASURE

cubic centimeter (1 gram weight of water)	= 0.03527 fluid ounce
	= 0.28219 fluid drachm
	= 15.43235 grains weight
cubic millimeter	= 0.01693 minim

## AVOIRDUPOIS WEIGHT

milligram (mgr.)	= 0.01543 grain
centigram (.01 gram)	= 0.5432 "
decigram (.1 gram)	= 1.54324 grains
gram	= 15.43235 "
dekagram (10 gram)	= 5.64383 drams
hectogram (100 gram)	= 3.52739 ounces
kilogram (1,000 gram)	= 2.20462125 pounds
	= 15432.34874 grains
myriagram (10 kilogram)	= 22.04621 pounds
quintal (100 kilogram)	= 1.96841 cwt.
millier or ton (1,000 kilogram)	= 0.98420591 ton

## TROY WEIGHT

gram	= 0.03215073 oz. Troy
	= 0.64301 pennyweight
	= 15.43235 grains

## APOTHECARIES' WEIGHT

gram	= 0.25721 drachm
	= 0.77162 scruple
	= 15.43235 grains

## LXXXII. — EQUIVALENTS OF BRITISH IMPERIAL AND METRIC WEIGHTS AND MEASURES

### STANDARDS AND FUNDAMENTAL EQUIVALENTS

The yard is the length at 62° F. marked on a bronze bar deposited with the Board of Trade.

The pound is the weight of a piece of platinum weighed in vacuo at the temperature of 0° C., which is also deposited with the Board of Trade.

The gallon contains 10 lb. weight of distilled water at the temperature of 62° F., the barometer being at 30 inches. The weight of a cubic inch of water is 252.286 grains.

### IMPERIAL TO METRIC

#### LINEAR MEASURE

inch	= 25.39954113 millimeters
foot (12 inches)	= 0.30479449 meters
yard (3 feet)	= 0.91438348 "
pole (5½ yards)	= 5.02911 "
chain (22 yards or 100 links)	= 20.11644 "
furlong (220 yards)	= 201.16437 "
mile (1,760 yards)	= 1.60931493 kilometers

#### SQUARE MEASURE

square inch	= 6.45137 sq. centimeters
square foot (144 sq. in.)	= 9.28997 sq. decimeters
sq. yard (9 sq. ft.)	= 0.83609715 sq. meters
perch (30½ sq. yd.)	= 25.29194 " "
rood (40 perches)	= 10.11678 ares
acre (4,840 sq. yds.)	= 0.40467 hectare
sq. mile (640 acres)	= 258.98945312 hectares

#### CUBIC MEASURE

cubic inch	= 16.38617589 cub. centimeters
cubic foot (1,728 cub. in.)	= 0.02832 cub. meter
	= 28.31531 cub. decimeters
cubic yard (27 cub. ft.)	= 0.76451342 cub. meter

## MEASURE OF CAPACITY

gill	= 141.983 cubic centimeters
	= 1.41983 deciliters
pint (4 gills)	= 0.56793 liter
quart (2 pints)	= 1.13586 liters
gallon (4 quarts)	= 4.54345797 liters
peck (2 gallons)	= 9.08692 "
bushel (8 gallons)	= 3.63477 dekaliters
quarter (8 bushels)	= 2.90781 hectoliters

## APOTHECARIES' MEASURE

gallon * (8 pints or 160 fluid oz.)	= 4.54346 liters
fluid ounce f. ʒ (8 drachms)	= 28.39661 cub. centimeters
fluid drachm f. ʒ (16 minims)	= 3.54958 " "
minim, M (0.91146 grain weight)	= 0.05916 " "

## AVOIRDUPOIS WEIGHT

grain	= 64.79895036 milligrams
dram	= 1.77185 grams
ounce (16 drams)	= 28.34954 "
pound (16 oz. or 7,000 grains)	= 0.45359265 kilogram
stone (14 pounds)	= 6.35030 "
quarter (28 pounds)	= 12.70059 "
hundred weight (112 pounds)	= 50.80238 "
	= 0.50802 quintal
ton (20 cwt.)	= 1.01604754 millier or tonne

## TROY WEIGHT

Troy ounce (480 grains † avoir.)	= 31.10350 grams
pennyweight (24 grains)	= 1.55517 "

## APOTHECARIES' WEIGHT

ounce ‡ (8 drachms)	= 31.10350 grams
drachm ʒi (3 scruples)	= 3.88794 "
scruple ʒi (20 grains *)	= 1.29598 "

\* The Apothecaries' gallon is of the same capacity as the Imperial gallon.

† The Troy grain is of the same weight as the Avoirdupois and Apothecaries' grain.

‡ The Apothecaries' ounce is of the same weight as the Troy ounce.

## THERMOCHEMISTRY

### LXXXIII. — THERMOCHEMICAL UNITS

THE SMALL CALORIE is the amount of heat required to raise the temperature of one gram of water one degree centigrade (from  $0^{\circ}$  to  $1^{\circ}$ ,  $4^{\circ}$  to  $5^{\circ}$  or  $15^{\circ}$  to  $16^{\circ}$  being used, giving slightly different values).

THE LARGE CALORIE is the amount of heat required to raise the temperature of one kilogram of water one degree centigrade. It is therefore one thousand times as large as the small calorie.

THE BRITISH THERMAL UNIT (B. T. U.) is the heat required to raise the temperature of one pound of water one degree Fahrenheit. As one kilogram is equal to 2.20462 pounds, and one degree centigrade is equal to  $\frac{5}{9}$  degree Fahrenheit, the large calorie is 3.96832 ( $2.20462 \times \frac{5}{9}$ ) times as great as the British Thermal Unit, the small calorie being .00396832 times the British Thermal Unit.

THE HEAT OF COMBUSTION of a substance is the number of small or large calories of heat evolved during the combustion of a gram or a kilogram of the substance.

Using the English weights and measures it is the number of B. T. U. of heat evolved during the combustion of one pound of the substance. To convert the former into the latter value the number of calories must be multiplied by 1.8 ( $3.96832 \div 2.20462$ ).

# LXXXIV.—HEAT OF COMBUSTION OF VARIOUS SUBSTANCES

Substance.	Burned to	Heat Evolved.		Authority.
		Cal- ories.	B.T.U.	
Alcohol, ethyl . . . . .	CO <sub>2</sub> + H <sub>2</sub> O liquid	7184	12931	Favre and Silberman
ethyl . . . . .	CO <sub>2</sub> + H <sub>2</sub> O liquid	7054	12697	Berthelot . . . . .
methyl . . . . .		5330	9594	
Asphalt . . . . .		9532	17159	Slossen and Colburn
Benzol C <sub>6</sub> H <sub>6</sub> gas . . . . .	CO <sub>2</sub> + H <sub>2</sub> O liquid	10070	18126	Berthelot . . . . .
gas . . . . .	CO <sub>2</sub> + H <sub>2</sub> O liquid	9650	17370	
liquid . . . . .	CO <sub>2</sub> + H <sub>2</sub> O liquid	10030	18054	Stohman . . . . .
Cane sugar . . . . .		3961	7130	Berthelot . . . . .
Carbon crystallized . . . . .	CO . . . . .	2405	4329	Berthelot . . . . .
crystallized . . . . .	CO <sub>2</sub> . . . . .	7859	14146	Berthelot . . . . .
amorphous . . . . .	CO . . . . .	2489	4480	Berthelot . . . . .
amorphous . . . . .	CO <sub>2</sub> . . . . .	8137	14647	Berthelot . . . . .
amorphous . . . . .	CO <sub>2</sub> . . . . .	8080	14544	Favre and Silberman
vapor . . . . .	CO <sub>2</sub> . . . . .	11328	20390	Calculated . . . . .
vapor diamond . . . . .	CO <sub>2</sub> . . . . .	11134	20041	Berthelot . . . . .
Carbonic oxide CO . . . . .	CO <sub>2</sub> . . . . .	5640	10152	Thomsen . . . . .
Cellulose . . . . .	CO <sub>2</sub> + H <sub>2</sub> O liquid	4208	7574	Berthelot . . . . .
Charcoal . . . . .	CO . . . . .	2473	4451	Favre and Silberman
" . . . . .	CO . . . . .	2442	4396	Berthelot . . . . .
" . . . . .	CO <sub>2</sub> . . . . .	8080	14544	Favre and Silberman
" . . . . .	CO <sub>2</sub> . . . . .	8137	14647	Berthelot . . . . .
beech . . . . .	CO <sub>2</sub> . . . . .	7140	12852	Schwackhöfer . . . . .
soft . . . . .	CO <sub>2</sub> . . . . .	7071	12723	Schwackhöfer . . . . .
sugar . . . . .	CO <sub>2</sub> . . . . .	8040	14472	Favre and Silberman
Coal (pure and dry) . . . . .		{ 7800	14040	
		{ 9000	16200	
Coke gas . . . . .	CO <sub>2</sub> . . . . .	8047	14485	Favre and Silberman
petroleum . . . . .	CO <sub>2</sub> . . . . .	8017	14503	Mohler . . . . .
Copper . . . . .	CuO . . . . .	590	1062	Thomsen . . . . .
Gas, acetylene C <sub>2</sub> H <sub>2</sub> . . . . .	CO <sub>2</sub> + H <sub>2</sub> O liquid	11927	21469	Berthelot . . . . .
acetylene C <sub>2</sub> H <sub>2</sub> . . . . .	CO <sub>2</sub> + H <sub>2</sub> O liquid	11527	20749	Thomsen . . . . .
coal . . . . .		{ 4440	7990	
		{ 7370	12266	
ethylene C <sub>2</sub> H <sub>4</sub> . . . . .	CO <sub>2</sub> + H <sub>2</sub> O liquid	11858	21344	Favre and Silberman
ethylene C <sub>2</sub> H <sub>4</sub> . . . . .	CO <sub>2</sub> + H <sub>2</sub> O liquid	12072	21730	Berthelot . . . . .
ethylene C <sub>2</sub> H <sub>4</sub> . . . . .	CO <sub>2</sub> + H <sub>2</sub> O gas . . . . .	11293	20327	Berthelot . . . . .
methane CH <sub>4</sub> . . . . .	CO <sub>2</sub> + H <sub>2</sub> O liquid	13063	23513	Favre and Silberman
methane CH <sub>4</sub> . . . . .	CO <sub>2</sub> + H <sub>2</sub> O liquid	13344	24019	Berthelot . . . . .



Substance.	Burned to	Heat Evolved.		Authority.
		Cal- ories.	B.T.U.	
Gas, methane $\text{CH}_4$ . . .	$\text{CO}_2 + \text{H}_2\text{O}$ gas. . .	12066	21719	Berthelot. . . . .
petroleum . . . . .		10800	19440	
producer . . . . .		{ 773	1391	
		{ 1370	2466	
water . . . . .		2350	4230	
water . . . . .		3032	5458	
Glycerene . . . . .	$\text{CO}_2 + \text{H}_2\text{O}$ liquid	4316	7769	Stohman . . . . .
Graphite . . . . .	$\text{CO}_2$ . . . . .	7901	14222	Berthelot . . . . .
Hydrogen . . . . .	$\text{H}_2\text{O}$ liquid . . . . .	34462	62032	Favre and Silberman
" . . . . .	$\text{H}_2\text{O}$ liquid . . . . .	34180	61524	Thomsen . . . . .
" . . . . .	$\text{H}_2\text{O}$ liquid . . . . .	34500	62100	Berthelot . . . . .
" . . . . .	$\text{H}_2\text{O}$ gas . . . . .	28800	51840	Thomsen . . . . .
" . . . . .	$\text{H}_2\text{O}$ gas . . . . .	29150	52470	Berthelot . . . . .
Iron . . . . .	$\text{Fe}_2\text{O}_3$ . . . . .	1582	2848	
Lignite (pure and dry)		{ 6000	10800	
		{ 7000	12600	
Magnesium . . . . .	$\text{MgO}$ . . . . .	6077	10939	
Naphthalene . . . . .	$\text{CO}_2 + \text{H}_2\text{O}$ liquid	9690	17442	Berthelot . . . . .
" . . . . .	$\text{CO}_2 + \text{H}_2\text{O}$ gas. . .	9354	16837	Berthelot . . . . .
Oil, cotton seed . . . . .		9500	17100	
heavy coal gas . . . . .		8900	16020	St. C. Deville . . . . .
olive . . . . .		9473	17051	Stohman . . . . .
rape . . . . .		9489	17080	Stohman . . . . .
schist . . . . .		9000	1620	
sperm . . . . .		10000	18000	Gibson . . . . .
Paraffin . . . . .	$\text{CO}_2 + \text{H}_2\text{O}$ liquid	11140	20050	Stohman . . . . .
" . . . . .	$\text{CO}_2 + \text{H}_2\text{O}$ gas. . .	10340	18612	Stohman . . . . .
Peat . . . . .		5940	10692	Bainbridge . . . . .
Petroleum . . . . .		9600	17280	
" . . . . .		11000	19800	
Pitch . . . . .		8400	15120	
Silicon . . . . .	$\text{SiO}_2$ . . . . .	7407	13333	Berthelot . . . . .
Stearic acid . . . . .	$\text{CO}_2 + \text{H}_2\text{O}$ liquid	9374	16873	Stohman . . . . .
Starch . . . . .	$\text{CO}_2 + \text{H}_2\text{O}$ liquid	4228	7610	Berthelot . . . . .
Sulphur, rhombic . . . . .	$\text{SO}_2$ . . . . .	2221	3998	Favre and Silberman
rhombic . . . . .	$\text{SO}_2$ . . . . .	2166	3899	Berthelot . . . . .
monoclinic . . . . .	$\text{SO}_2$ . . . . .	2241	4034	Thomsen . . . . .
Tallow . . . . .		9500	17100	Stohman . . . . .
Wood, hard . . . . .		4750	8550	Gottlieb . . . . .
soft resinous . . . . .		5050	9090	Gottlieb . . . . .

LXXXV.—CHEMICAL COMPOSITION AND HEAT OF COMBUSTION OF  
ANTHRACITE COAL.\*

Source and Grade of Coal.	Chemical Composition.										Heat of Combustion.	
	Carbon.			Sulphur.	Nitro-gen.	Oxy-gen.	Water.	Ash.				
	Fixed.	Volatile.	Total.									
											Cal-ories.	B.T.U.
Lackawanna.....	84.0	5.0						11.0	7724	13900		
Black Mountain.....	92.41	2.17						5.42	8333	15000		
Lykens Valley buckwheat.....	76.94	6.21						15.5	7833	14100		
Lykens Valley buckwheat.....	81.0	5.0						14.0	7583	13650		
Mount Pleasant Scranton pea.....	76.28	7.49						10.01	7806	14050		
Treverton.....	85.66	6.67	90.66	1.73	0.78	.001	0.84	6.83	8442	15195		

\* Most of the data for this table have been quoted from The Calorific Power of Fuels by Poole.

LXXXVI.—CHEMICAL COMPOSITION AND HEAT OF COMBUSTION OF  
BITUMINOUS COAL\*

Source and Grade of Coal.	Chemical Composition.								Heat of Combustion.		
	Carbon.			Hydrogen.	Oxy- gen.	Nitro- gen.	Sul- phur.	Water.	Ash.	Cal- ories.	B.T.U.
	Fixed.	Volatile.	Total.								
Indiana: Brazil.....	50.30	34.49	70.50	4.76	16.29	1.36	1.39	8.98	6.28	8079	14542
Lancaster.....	47.22	37.44	71.41	5.56	18.42	1.54	0.62	12.66	2.68	7917	14251
Ohio: Brier Hill.....	59.1	36.4	.....	.....	.....	.....	.....	.....	4.5	7888	14200
Hocking Valley.....	49.05	36.05	68.18	4.65	9.40	1.44	1.43	6.40	8.50	7767	13981
Waterford.....	53.34	37.29	74.39	4.98	6.42	1.40	3.44	1.55	7.82	8230	14814
Pennsylvania: Carnegie.....	56.20	36.42	77.20	5.10	7.22	1.68	1.42	1.45	5.93	8304	14947
West Virginia: Pocahontas.....	73.65	18.30	83.75	4.13	2.65	0.85	0.57	0.80	7.25	8768	15682
Pocahontas ad. Thacker.....	74.52	18.10	.....	.....	.....	.....	0.60	0.73	6.65	8751	15739
Wyoming: Diamond.....	57.10	35.00	78.90	4.98	5.64	1.42	1.16	1.40	6.50	8434	15181
Harker.....	44.30	33.35	77.65	.....	.....	.....	0.42	14.50	7.85	6477	11658
Jumbo.....	43.90	33.52	77.40	.....	.....	.....	1.03	7.88	14.70	7433	13380
	43.65	40.13	83.78	.....	.....	.....	4.57	5.72	10.50	7873	14170

\* Most of the data for this table have been quoted from The Calorific Power of Fuels by Poole.

LXXXVII.—CHEMICAL COMPOSITION AND HEAT OF COMBUSTION OF  
OVEN COKES \*

Source of Coke.	Chemical Composition.									Heat of Combustion.	
	Carbon.			Hydro- gen.	Oxy- gen.	Nitro- gen.	Sul- phur.	Water.	Ash.	Cal- ories.	B.T.U.
	Fixed.	Volatile.	Total.								
Connellsville, Pa.....	89.58	0.46	.....	.....	.....	.....	0.81	0.03	9.11	7895	14211
Dade, Pa.....	75.94	0.09	.....	.....	.....	.....	0.67	0.54	21.75	7953	14315
Pineville, W. Va.....	94.66	0.04	.....	.....	.....	.....	0.69	1.14	3.57	8006	14128
Pocahontas, W. Va.....	92.80	0.66	.....	.....	.....	.....	0.55	0.66	4.91	8032	14457
Pratt, Pa.....	88.87	1.58	.....	.....	.....	.....	1.18	1.92	8.99	7946	14300
Seymore, Pa.....	90.65	0.63	.....	.....	.....	.....	0.85	0.22	7.65	8036	14468
St. Bernard, Pa.....	90.69	0.34	.....	.....	.....	.....	2.37	.....	8.96	7995	14340

\* Most of the data for this table have been quoted from The Calorific Power of Fuels by Poole.

LXXXVIII.—CHEMICAL COMPOSITION AND HEAT OF COMBUSTION  
OF LIGNITE \*

Source of Coke,	Chemical Composition.								Heat of Combustion.	
	Carbon.			Oxy- gen.	Nitro- gen.	Sul- phur.	Water.	Ash.	Cal- ories.	B.T.U.
	Fixed.	Volatile.	Total.							
Cañon City, Col.	51.36	37.61	7.38	9.27	1.50	1.02	7.01	4.03	7276	13097
Erie, Col.	45.98	32.71	4.25	6.65	1.64	0.52	18.57	2.74	6311	11360
Golden City, Col.	34.89	44.74	5.14	14.60	1.50	0.42	17.15	3.22	5432	9778
Golden City, Col.	42.08	36.20	5.07	27.77	1.20	0.43	18.35	3.37	4530	8154
Golden City, Col.	38.46	41.23	4.89	13.88	0.95	0.30	17.64	2.67	5526	9947
Gunnison River, Col.	84.65	12.16	3.72	4.20	1.62	0.70	1.50	2.29	7911	14240
Lechner's South Park, Col.	58.62	33.79	5.23	12.86	2.35	0.47	6.30	1.28	6780	12204

\* Most of the data for this table have been quoted from The Calorific Power of Fuels by Poole.

# LXXXIX. — CHEMICAL COMPOSITION AND HEAT OF COMBUSTION OF WOOD\*

Name.	Chemical Composition.						Heat of Combustion.	
	Carbon.	Hydrogen.	Oxygen.	Nitrogen.	Ash.	Water.	Calories.	B.T.U.
Ash.....	49.18	6.27	43.91	0.07	0.57	.....	4711	8480
Beech.....	49.06	6.11	44.17	0.09	0.57	.....	4774	8591
Birch.....	48.88	6.06	44.67	0.10	0.29	.....	4771	8586
Elm.....	48.89	6.20	44.25	0.06	0.50	.....	4728	8510
Fir.....	50.36	5.92	43.39	0.05	0.28	.....	5035	9063
Oak.....	50.16	6.02	43.36	0.09	0.37	.....	4620	8316
Pine.....	50.31	6.20	43.08	0.04	0.37	.....	5085	9153
Tan bark.....	.....	.....	.....	.....	15.0	.....	3389	6100
" "	.....	.....	.....	.....	.....	30.0	2380	4284

# XC. — CHEMICAL COMPOSITION AND HEAT OF COMBUSTION OF PETROLEUM \*

Source.	Grade.	Specific Gravity.	Chemical Composition.				Heat of Combustion.	
			Carbon.	Hydrogen.	Oxygen + Nitrogen.	Oxygen.	Calories.	B.T.U.
Ohio.....	Heavy...	0.887	84.2	13.1	2.7	...	10399	18718
	Lima.....	.....	80.2	17.1	2.7	....	12000	21600
Pennsylvania	Crude....	0.938	84.9	13.7	....	1.4	11520	20736
	Heavy....	0.886	84.9	13.7	1.4	....	10672	19210
	Light....	0.826	82.0	14.8	3.2	....	9963	17930
West Virginia	Heavy....	0.928	88.3	13.9	....	0.8	10102	18184
	Heavy....	0.873	83.5	13.3	3.2	....	10180	18324
	Light....	0.841	84.3	14.1	1.6	....	10223	18400
Russia.....	Crude....	0.884	86.3	13.6	....	0.1	12650	22628
	Crude....	0.938	86.6	12.3	....	1.1	10800	19440

\* Most of the data for this table have been quoted from The Calorific Power of Fuels by Poole.

# XCI.—CHEMICAL COMPOSITION AND HEAT OF COMBUSTION OF NATURAL GAS \*

Source of Gas.	Chemical Composition.							Heat of Combustion.			
	Hydro- gen, H <sub>2</sub> .	Meth- ane, CH <sub>4</sub> .	Ethyl- ene, C <sub>2</sub> H <sub>4</sub> .	Illumi- nants.	Carbon Dioxide, CO <sub>2</sub> .	Carbon Mon- oxide, CO.	Oxygen, O <sub>2</sub> .	Nitro- gen, N <sub>2</sub> .	Hydro- gen Sul- phide, H <sub>2</sub> S.	Calories per Cu. M.	B.T.U. per Cu. Ft.
Indiana, Kakomo.....	1.42	94.16	0.30	.....	0.27	0.55	0.30	2.80	0.18	9581	1030
Munice.....	2.35	92.67	0.25	.....	0.25	0.45	0.35	3.53	0.15	9477	1019
Kentucky, Louisville.....	1.31	87.75	.....	.....	6.60	.....	.....	4.34	.....	8849	939
New York, Olean.....	.....	96.50	.....	1.00	.....	0.50	2.00	.....	.....	9900	1071
W. Bloomfield.....	.....	82.41	.....	2.94	10.11	.....	0.23	4.31	.....	9158	998
Ohio, Findlay.....	2.18	92.60	.....	0.31	0.26	0.50	0.34	3.61	0.20	10250	1100
Pennsylvania, Burn's Well	6.10	75.44	18.12	trace	0.34	trace	.....	.....	.....	10090	1170
Cherry Tree.....	22.50	60.27	6.80	.....	2.28	.....	0.38	7.32	.....	8034	840
E. Liberty.....	9.64	57.85	0.80	5.20	.....	1.00	2.10	23.41	.....	5581	592
Leechburg.....	4.89	89.65	4.39	0.56	0.35	0.26	.....	.....	.....	9962	1073
Grapeville.....	24.56	14.93	0.96	39.64	trace	trace	0.12	18.69	.....	8326	891
Murraysville.....	19.56	78.24	.....	.....	.....	.....	2.20	.....	.....	8458	900
Pittsburg.....	20.02	72.18	.....	6.30	0.80	1.00	0.80	.....	.....	8620	917

\* Most of the data for this table have been quoted from The Calorific Power of Fuels by Poole.

# XCII. — CHEMICAL COMPOSITION AND HEAT OF COMBUSTION OF COAL GAS \*

Source of Gas.	Chemical Composition.							Heat of Combustion.			
	Hydro- gen, H <sub>2</sub> .	Meth- ane, CH <sub>4</sub> .	Ethyl- ene, C <sub>2</sub> H <sub>4</sub> .	Illumi- nants.	Carbon Dioxide, CO <sub>2</sub> .	Carbon Mon- oxide, CO.	Oxygen, O <sub>2</sub> .	Nitro- gen, N <sub>2</sub> .	Hy- drogen Sul- phide, H <sub>2</sub> S.	Calories per Cu. M.	B.T.U. per Cu. Ft.
Boston, Mass. ....	47.49	38.67	5.21	.....	1.04	6.74	.....	0.85	.....	6095	651
Cape Breton, Canada. ....	44.6	39.2	.....	6.2	1.4	4.5	0.6	3.3	.....	5460	612
Cape Breton, Canada. ....	45.4	36.5	.....	5.2	2.2	3.6	0.6	6.3	.....	5455	611
Cincinnati, Ohio. ....	45.85	39.26	5.17	.....	0.82	4.78	0.41	3.71	.....	6039	645
Cleveland, Ohio. ....	34.80	28.80	9.50	1.70	0.20	10.40	0.40	14.20	.....	6151	657
Coke Ovens, Johnston, Pa. ....	57.2	18.8	.....	0.8	2.00	3.20	.....	18.0	.....	3736	399
Coke Ovens, Westphalia. ....	53.2	36.11	.....	2.24	1.41	6.49	.....	.....	0.43	5730	612
Hoboken, N. J. ....	39.50	37.30	5.85	0.75	2.70	4.30	1.40	8.20	.....	6039	645
International, Canada. ....	46.5	35.7	.....	5.0	3.1	5.7	0.5	3.7	.....	5536	620
Newton, Mass. ....	50.59	34.80	.....	5.23	1.16	6.16	.....	2.06	.....	5608	599

\* Most of the data for this table have been quoted from The Calorific Power of Fuels by Poole.



## XCIII. — CHEMICAL COMPOSITION AND HEAT OF COMBUSTION OF WATER GAS \*

Source of Gas.	Chemical Composition.							Heat of Combustion.			
	Hydro- gen, H <sub>2</sub> .	Meth- ane, CH <sub>4</sub> .	Ethyl- ene, C <sub>2</sub> H <sub>4</sub> .	Illumi- nants.	Carbon Dioxide, CO <sub>2</sub> .	Carbon Mon- oxide, CO.	Oxygen, O <sub>2</sub> .	Nitro- gen, N <sub>2</sub> .	Hy- drogen H <sub>2</sub>	Calories per Cu. M.	B.T.U. per Cu. Ft.
Anthracite gas.....	52.76	.....	.....	4.11	2.05	35.38	.....	4.43	.....	3385	386
Coke.....	50.10	.....	.....	0.70	4.00	40.00	.....	5.3	.....	2859	294
Coke and bituminous coal.....	94.08	.....	.....	.....	0.50	3.54	.....	0.12	.....	3032	324
Granger process (uncarburetted).....	52.88	2.16	.....	3.47	.....	36.8	.....	4.69	.....	2642	283
Granger process (carburetted).....	30.0	24.0	12.5	0.3	.....	29.0	0.2	2.5	1.5	6000	640
Granger process (from coke).....	52.41	0.2	.....	.....	4.8	11.5	.....	0.47	.....	3098	331
Loomis process, Boston, Mass.....	53.40	3.10	.....	0.29	7.60	29.50	.....	6.05	.....	2884	308
Lowe process, Des Moines (1½ gal. oil).....	41.7	12.2	.....	5.4	4.5	34.6	0.4	1.2	.....	4580	490
Lowe process, Des Moines (2½ gal. oil).....	37.6	16.5	.....	8.9	3.7	30.7	0.7	1.9	.....	5514	590
Lowe process, Philadelphia, Pa.....	50.9	.....	.....	.....	.....	44.5	0.07	2.08	.....	3062	327
New York City, 1897.....	32.7	16.8	.....	14.4	2.4	30.2	0.4	3.1	.....	7160	766
Rose-Hastings, Louisville, Ky (soft c'l).....	36.4	23.2	.....	14.05	3.02	19.1	1.15	3.08	.....	6140	657
Rose-Hastings (generator gas).....	9.8	49.6	.....	1.1	8.1	28.1	0.3	3.9	.....	3482	390
Rose-Hastings (enriched).....	26.0	34.6	.....	11.9	5.6	10.9	0.3	1.6	.....	6000	673
Strong Process, Yonkers, N. Y.....	52.76	4.11	.....	.....	2.05	35.88	0.77	4.43	.....	2900	315

\* Most of the data for this table have been quoted from The Calorific Power of Fuels by Poole.



# **REVIEW OF CHEMICAL LITERATURE**

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**A LIST OF THE MORE IMPORTANT ARTICLES WHICH HAVE  
BEEN PUBLISHED SINCE JAN. 1, 1905.**



# ANALYTICAL CHEMISTRY

BY JOHN C. OLSEN, A.M., PH.D.

**Acetic acid**, determination of, in white lead.

G. W. Thompson, Jour. Soc. Chem. Ind., **24**, 487.

**Acetone**, a new method of determination.

S. J. M. Auld, *ibid*, **25**, 100-101.

**Acids and alkalies**, a new indicator for.

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**Acids**, systematic method for the detection of.

Stanley B. Benedict and J. F. Snell, Jour. Am. Chem. Soc., **27**, 736.

**Affinity of Acids**, colorimetric determination of, by vegetable colors.

J. H. Kastle, Am. Chem. Jour., **33**, 46-59.

**Alcohol**, determination of, in beer by means of the Zeiss immersion refractometer.

Edw. Ackermann and A. Steinmann, Zeit. f. ges. Brauw., **28**, 259-260.

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BY ALLEN ROGERS, PH.D.

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# ORGANIC CHEMISTRY

By V. J. CHAMBERS, Ph.D.

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# PHYSICAL CHEMISTRY

BY J. LIVINGSTON R. MORGAN, PH.D.

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# RADIOACTIVITY

BY GEO. B. PEGRAM, PH.D.

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In this list reference is given in many cases to a journal in which a review of the book may be found. Most of these reviews are found in the *Zeitschrift f. Anorganisches Chemie* which is designated by Z.

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